AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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THE YOUNG STALLION CLAY HAMBLETONIAN.—DRAWN BY EDWIN FORBES.—*Engraved for the American Agriculturist.*

The American trotting horse has been produced from a variety of elements that have been blended to secure a high development of what has been termed the "trotting instinct." The most celebrated sires to which the established trotting families trace their origin were, with few exceptions, thorough-bred, or with a large preponderance of thorough-bred blood. With the inherited nervous force of these sires was combined an aptitude for trotting action, that has been intensified by systematic training and selection during the past half century with the most satisfactory results. The first trotting match in America was made in 1818, for a stake of $1,000 against time. It was won by "Boston Blue" in the then unprecedented time of three minutes. Now, the trotters having a technical record of 2.30 and less are numbered by hundreds, while "St. Julien" has made his mile in 2.12¼. Breeders of trotters, although favoring certain strains of blood, have considered the performance of the animal as the test of excellence, and as the best performers have descended from a few favored sires, the blood of these has been mingled to a greater or less extent in many of the celebrities of the day.

In the stallion "Clay Hambletonian," the property of Ira S. Gardner, Johnsons, Orange Co., N.Y., whose portrait is given above, the blood of two prominent families is represented—the Hambletonians and Clays. His sire, "Mapes' Hambletonian," was by "Rysdyk's Hambletonian," the celebrated progenitor of the Hambletonian family, that deservedly stands first in popular favor. His dam, the fast trotting mare, "Nettie Clay," is a daughter of "Sayer's Harry Clay," and her dam traces a lineage through "Highlander" and "Duroc," to imported "Diomed." "Sayer's Harry Clay" was by "Neaves' Clay," he by "Cassius M. Clay," and he by "Henry Clay," who was descended from "Young Bashaw." The dam of "Sayer's Henry Clay" was by "Bellfounder," the noted Norfolk trotter imported in 1822. Until within a few years the Clay family has not been appreciated by breeders of trotters, but the great success of Hambletonian sires with the daughters of "Sayer's Harry Clay," has shown the value of this strain of blood. The Bellfounder blood of the Clays on the side of the dam seems to supplement the dominant Messenger blood of the Hambletonian with its similar Bellfounder cross, giving a perfect trotting form.

"Clay Hambletonian" is thus, as to his breeding, in good company, and although never trained, his form and action indicate that he is capable of a rate of speed that would be creditable to the blood he represents. "Clay Hambletonian" is eight years old, stands 16 hands high, and weighs nearly 1,100 lbs. in his present condition. His color is a rich brown, with a star in his forehead, and one white hind foot. His proportions and general expression are well represented in the engraving; he has good legs and sound hoofs, and moves with a square, even gait. His sloping rumps and strong quarters—characteristic of his maternal blood—are seen to the best advantage when in motion.

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Calendar for June, 1880.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n rises.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n rises.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M
1	T	4 25	7 30	0 47	4 31	7 25	0 47	4 36	7 19	0 49
2	W	4 25	7 31	1 11	4 30	7 25	1 13	4 36	7 20	1 15
3	T	4 24	7 31	1 36	4 30	7 26	1 39	4 35	7 20	1 42
4	F	4 24	7 32	2 4	4 30	7 27	2 8	4 35	7 21	2 12
5	S	4 24	7 33	2 35	4 29	7 27	2 40	4 35	7 22	2 46
6	S	4 23	7 34	3 12	4 29	7 28	3 18	4 35	7 22	3 24
7	M	4 23	7 34	sets	4 29	7 29	sets	4 34	7 23	sets
8	T	4 23	7 35	8 37	4 28	7 29	8 22	4 34	7 23	8 16
9	W	4 23	7 35	9 8	4 28	7 30	9 3	4 34	7 24	8 57
10	T	4 23	7 36	9 42	4 28	7 30	9 38	4 34	7 25	9 34
11	F	4 22	7 37	10 12	4 28	7 31	10 9	4 34	7 25	10 6
12	S	4 22	7 37	10 39	4 28	7 31	10 37	4 34	7 25	10 34
13	S	4 22	7 38	11 3	4 28	7 31	11 2	4 34	7 26	11 1
14	M	4 22	7 38	11 27	4 28	7 32	11 27	4 34	7 26	11 27
15	T	4 22	7 38	11 51	4 28	7 33	11 53	4 34	7 27	11 53
16	W	4 22	7 39	morn	4 28	7 33	morn	4 34	7 27	morn
17	T	4 22	7 39	0 19	4 28	7 33	0 20	4 34	7 27	0 24
18	F	4 22	7 39	0 48	4 28	7 34	0 52	4 34	7 28	0 56
19	S	4 23	7 40	1 24	4 28	7 34	1 29	4 34	7 28	1 34
20	S	4 23	7 40	2 9	4 28	7 34	2 15	4 34	7 28	2 21
21	M	4 23	7 40	3 5	4 29	7 35	3 11	4 35	7 29	3 18
22	T	4 23	7 40	rises	4 29	7 35	rises	4 35	7 29	rises
23	W	4 23	7 41	8 48	4 29	7 35	8 44	4 35	7 29	8 40
24	T	4 23	7 41	9 26	4 29	7 35	9 23	4 35	7 29	9 20
25	F	4 24	7 41	9 57	4 30	7 35	9 55	4 36	7 29	9 54
26	S	4 24	7 41	10 25	4 30	7 35	10 24	4 36	7 29	10 23
27	S	4 24	7 41	10 50	4 31	7 35	10 50	4 36	7 29	10 51
28	M	4 25	7 41	11 14	4 31	7 35	11 16	4 37	7 29	11 18
29	T	4 25	7 41	11 39	4 31	7 35	11 42	4 37	7 29	11 45
30	W	4 26	7 41	morn	4 32	7 35	morn	4 38	7 29	morn

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
New M'n	7	5 11 ev.	4 59 ev.	4 47 ev.	4 35 ev.	4 5 ev.
1st Quart	15	5 7 ev.	4 55 ev.	4 43 ev.	4 31 ev.	4 1 ev.
Full M'n	22	9 2 mo.	8 50 mo.	8 38 mo	8 26 mo.	7 56 mo.
3d Quart.	29	5 13 mo.	5 1 mo.	4 49 mo	4 37 mo.	4 7 mo.

AMERICAN AGRICULTURIST.

NEW YORK, JUNE, 1880.

Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

So far as our observation and information extends the prospect for the various farm crops is good, and if average weather is given us until harvest time the farmer may expect a good return for his labor. Any trouble from "over production" is not to be feared as the foreign market is steady and will need all we can produce in the way of grains, meats, etc., to supply it. Emigration to the West is going on to an extent rarely before known, and it is reasonable to expect that there will be a good supply of labor for the present season; and a large area of new land taken up by the new comers and rapidly worked into productive farms.

Corn.—Frequent cultivation is necessary to the destruction of the weeds while they are young. A smoothing harrow may be used while the corn is small, to be followed by the cultivator and hoe, as the plants get larger. The double cultivator with a span of horses, is more economical than the single cultivator and a single horse, as it saves the labor of one man. One great advantage of the corn crop, is the opportunity furnished for thorough tillage, the beneficial influence of which will be felt throughout the whole rotation of crops. The labor expended upon the growing corn, should be charged in part against the crops that are to follow.

Fodder Corn may be sown in drills, 2½ to 3 feet apart, and at intervals of ten days, for several weeks to come. It is not well to sow the seed broadcast, as the plants, to do the best, need to be cultivated while young, and for this purpose, drills are necessary. The smaller varieties are preferable on account of superior fineness of the fodder. The notion that sweet corn is better for corn fodder than the ordinary field sorts, is without foundation. That the grain is sweeter in the former, does not indicate that the stalks are any better.

Swedish Turnips may be sown this month, in drills 30 inches apart. A plenty of seed should be sown, to insure an even stand of plants—2 lbs. per acre is not too much. The land should be well manured, and thoroughly prepared—a fine tilth is especially essential to success on old ground. Thin the plants, when the second leaf appears, to at least 12 to 15 inches apart. Partial or total failure is, in many cases, to be attributed to defective thinning.

Mowing Machines have come to be an indispensable part of the machinery of the farm. It is a serious loss of time and money to get in any large crop of hay without using them. Scythes may be used around fence corners, trees, etc., but in open fields they must give place to the horse mowers, many kinds of which are so near perfection that it is hard to go astray in selecting one.

Haying.—Clover and Timothy should be cut when in full blossom; if allowed to get ripe, the quality of hay is not so good. By beginning early the work need not be hurried. Use the mower after the dew is off in the forenoon. Cut only as much as can be well cared for. It is often remarked that the average quality of hay is not so good as before the introduction of the mowing machines, from the temptation to cut the grass faster than it can be cured.

Hay Tedders are important implements in conjunction with the mower. Frequent stirring of the grass, to give the air access to all parts without burning the surface in the sun, is a great aid in making hay of the best quality. Grass cut in the forenoon, and well stirred with the tedder, may be put into cocks in the afternoon, when it will cure better than if spread over the surface of the meadow.

Hay Caps are excellent things to protect the hay from the damage that showers would otherwise do to the curing hay. They should be made of stout cotton, a yard or yard and a half square, provided with loops at the corners for fastening down with wooden pegs. If well cared for, a set of caps will last many years, and save several times their cost.

Sheep Shearing.—Washing sheep under the present system of buying wool, will perhaps be the prevailing practice. If care is taken to keep the sheep so that the wool will not be filled with dirt, it is better not to wash. Fleeces should be done up with care, nicely rolled and securely tied with light twine. When it is known that a farmer puts up his wool in neat shape without any tags, etc., he will obtain the highest price. Everywhere, but especially here, "honesty is the best policy."

Ticks.—Immediately after shearing, the ticks leave the sheep for the longer wool of the lambs. The lambs thus infested should be dipped in a decoction of tobacco stems, which will destroy the ticks. Several special dips are in the market.

Potatoes.—The Colorado Beetle must be kept in check by a free and judicious use of Paris Green, or the equally efficient and cheaper London Purple. The liquid method of application, using some sort of a sprinkler, is now most generally practised. It must be remembered that these substances are deadly poisons, to be handled with caution and stored in a secure place, or serious results may follow.

Buckwheat may be sown during this month, and may be made a profitable crop, especially upon newly cleaned ground where the mellowing effects of the crop are of importance. The Silver-Hull buckwheat is better than the common variety, the yield being greater, and the flour from it is whiter and of a finer quality than the ordinary sort.

Poultry.—Many chickens are carried off by hawks, rats, etc., unless safe coops are provided, which should be closed at night and not opened until the dew is off the grass in the morning.

Cellars should be ventilated at night and kept closely shut up and dark in the day time. The outer air highly charged with moisture, if allowed to enter the cellar in the day time will deposit much of its moisture upon the cold walls, and the cellar is made more damp instead of dryer by the day ventilation.

Summer-Fallows.—In rare cases it may be well to summer-fallow. The object is mainly to kill off weeds that have become plentiful and are otherwise difficult to destroy, especially on heavy clay soils. There are so many green crops that may be grown to advantage for cleaning the ground, that it seldom pays to keep a field idle for a whole season merely to rid it of weeds. If it is decided to summer-fallow it should be done with thoroughness

that the greatest good may come from the expensive rest that is given to the fallowed land.

Pigs for early fall killing will need a regular and generous feeding of bran and meal slops. A quantity of milk, with a run in the grass, will do them good. A little forcing at the start pays well for pigs that are grown for the early market.

Rubbing Posts.—All who have the comfort of their animals at heart—and, we may add, desire to preserve their fences intact—should provide a few rubbing posts for the animals. The pleasure of seeing them used is pay enough, but there is more.

Salt Boxes are easily made and are very useful. A few boxes in the pasture will be a saving of the salt which is otherwise thrown upon the soil and largely lost. Long flat troughs may be used.

A Horse Fork.—In the hurry of haying, the saving which is made by using a horse fork will more than pay its cost in a few days. As a time and labor-saving machine, a horse fork should be used on every farm of any ordinary size.

Working Horses.—A thorough washing with clean water, not too cold, will greatly aid in keeping the working horses in a good condition; it removes the accumulated and dried sweat and dirt much better than dry rubbing. The harness should be kept clean and soft that it may not gall the animals. A little powdered aloes rubbed on with the oil will keep away any insects that are likely to infest the harness, and will do no injury to the horse.

Calves should have a good run of grass. The pushing of them without overdoing must be kept in mind. The first year's growth determines in a great measure what shall be the future of the animal.

Notes on Orchard and Garden Work.

Whatever the earlier part of the season may have been, the first of June, take one year with another, finds the vegetation of the orchard and garden equally advanced. The work now is principally caring for the growing crops. The soil should be kept free from weeds and well stirred, especially if the weather is dry. The best time to kill weeds is while they are young, therefore the hoe, cultivator, and especially the rake, should be kept in motion. Clean culture is the only kind that pays, and it can be practised only by keeping ahead of the weeds.

Orchard and Nursery.

In keeping the ground loose and free from weeds, horse-cultivation should be used as much as possible, care being taken to not bruise the bark, break the lower branches, or otherwise injure the trees. The ends of the whiffletrees should be thickly wound with cloth, or provided with leather pads, to prevent their doing damage to the trees.

Orchards.—With newly planted trees it will pay to give a little time in examining their condition. If they are loose or leaning to one side, a minute spent in pressing the soil about them with the foot will often save them. A mulching, if not already given to the young trees, should be provided before the long drouth. Almost any substance that will cover the soil and protect it from the sun will do.

Labels that are sent from the nursery are only to serve until the trees are planted. A permanent record of the position and kind of every tree in the orchard should be made before the nursery labels are lost or obliterated. A small plan can be made and carried in the pocket memorandum book. A plan of such a record was given in the "Notes" of last year (June 1879.) If the labels upon the trees are to be the only method of indicating the varieties, zinc ones cut in long triangular shape, 4 to 6 inches long, may be used. The name is written in lead pencil, and the narrow end coiled loosely around the limb. Such labels made and adjusted with care have been known to last for 25 years.

Grafts set this spring should be looked to; and if the bud or buds grow too vigorously, pinch back into shape; in fact a graft should be treated as if it were a young tree. Cut away all shoots that come upon the stock below the graft, that the nourishment may go to the graft. See that the branches of the graft have plenty of room, and the growth is not interfered with by surrounding branches.

Pruning.—June is a good time for pruning. Larger limbs may be cut away now, covering all cuts with varnish, paint, or melted grafting wax.

Thinning Fruit.—The sooner this essential to the production of the best fruit is done the better. It is seldom overdone, and too frequently entirely neglected. Thinning increases the size and improves the quality of the fruit, and with young trees, just starting into bearing, it is a necessity.

Baskets and Crates for marketing should be provided, and let them be distinctly and neatly marked with the address of both shipper and consignee.

Curculio.—Begin as soon as the fruit is set to visit the trees in early morning; the sluggish insects may then be jarred from the trees and caught upon sheets opened beneath to catch them. The Curculios thus caught should be swept into the fire.

Coddling Moth.—The "worms," after leaving the fruit, seek some hiding place to undergo their changes, and bands of cloth or hay, put upon the trunks of the trees, will catch many of them. The bands should be removed once in ten days, and the insects that have gathered beneath them killed.

Tent Caterpillars are best removed in the early morning while they are in their nests, and the dew glistening upon the web. A pole and swab may be used. The Wild Cherry is such a favorite of the Tent Caterpillar that it is hardly worth the while to keep any such harbors for it near the orchards.

Pear Slugs when so numerous as to do injury, may be destroyed by dusting the leaves with lime or ashes; even dry earth may be used with good effect.

The Borers of the peach and apple trees are to be looked to. When once in the tree there is no surface remedy. Heaping earth around the base of the tree, or using a close-fitting paper band will keep the female insect from depositing her eggs. For killing the worms the use of the knife and wire probe is the most effectual. Their whereabouts is known by the sawdust they make, and depression of the bark. Use the knife cautiously.

The Fruit Garden.

Currants and Gooseberries.—A mulch should be applied early in the season; litter from the barn-yard, or "chip-dirt" from the wood-yard may be used. For the "worms" use White Hellebore, a tablespoonful of the dry powder to a pailful of water, the Hellebore being first scalded before going into the pail—apply with a syringe or Fountain Pump, repeating the application in a few days, and continue until the worms are all killed. If shoots start on the bushes where they are not wanted, they should be removed, thus saving much pruning in the fall, and the remaining growth is strengthened thereby. The fruit is frequently sold with greatest profit while green, especially is this the case with gooseberries. For making jelly pick the fruit when fully colored, but before it is "dead ripe."

Raspberries.—The green shoots that are growing now are the ones to bear the next year's fruit, the fruiting ones this season dying after the berries have ripened. When the growing shoots reach 4 feet they should be pinched off. Those not required for next year are to be treated as weeds. The old canes are to be cut away after fruiting.

Blackberries need much the same treatment as their near neighbors, the raspberries. The young canes are allowed a little longer growth, and should be pinched at 5 or 6 feet—all not needed are to be removed. Both the young and old canes should be kept upright by using stakes or trellises.

Grape-vines one-year old set this spring should grow only one shoot; let it be the strongest and best one put forth. Older vines recently set should not be allowed to bear this year. The young growing shoots of old vines should be tied up before they fall over or are broken by the winds; soft cotton twine or bast bark are the best for the purpose.

Strawberries.—A mulch of straw, cut hay, or leaves, should be applied before the fruit begins to ripen, that the berries may be kept from the soil. The picking and packing for market requires much care and good judgment. All over-ripe berries should be excluded, as one such will be crushed and spoil the whole basket. The treatment of the bed after fruiting depends upon the method of cultivation. In any case the mulch is to be removed and the soil forked over. When the plants are kept in hills, the runners are to be cut as fast as they appear. In the alternate system they are allowed to take root between the rows, and the old plants are removed later in the season. Runners struck in small pots of soil will be ready to plant out in August, and will give a good crop next year. Layer the earliest and strongest runners for this purpose.

Kitchen and Market Garden.

This is the time when the rake and the hoe count for so much in the success of the season's work. The weeds must be kept down, or much of the labor of preparation and planting is lost. It is observed that the rake is put before the hoe, and it should be so in the garden. A frequent use of a long and sharp-toothed steel-rake will save much hard hoeing, and at the same time keep the soil in a better condition for the young growing plants.

Sowing for Succession is a useful method of prolonging the season of many vegetables, and should be more generally practised. By sowing beans, peas, corn, etc., at intervals of a week or so, these valuable vegetables may be had through the season.

Asparagus.—After peas have come the plants should be allowed to grow up in order that the green foliage may accumulate food for next spring's early growth. A coating of manure may be added. Keep all large weeds out; the small ones will not grow after the ground is densely shaded by foliage.

Beans.—If the weather has been cold and backward, and injured the Limas, put in more at once. These and other pole beans need attention to make them all take to the poles. Sow Bush sorts, as the "Refugee" for succession and pickling.

Beets and Carrots.—Sow the main crop if not done already. Keep the weeds out and the soil loose. A succession of the "Egyptian" to use while young should be sown, using the thinnings for greens.

Cabbage and Cauliflower need frequent hoeing. Plants for late sorts in seed-beds should not be too crowded; they need weeding frequently, and if infested with the cabbage worm, sprinkle with ashes. For Notes on the Cabbage Worm see page 228.

Cucumbers.—For pickles, sow until the middle of the month. Drills are preferred, 5 to 7 feet apart. The ground should be well manured, by plowing furrows, and putting it in, and covering with an inch or so of soil. From 12 to 20 seeds per foot in the rows, gives a fair share for the striped bug, which is quite certain to give them a call. So soon as plants appear, dust with ashes or fine lime, and when well started, thin to three feet apart.

Corn.—Plant at frequent intervals. A top-dressing of guano is excellent. Hoe often.

Celery.—If the plants in the seed-bed get too large, cut off their tops, thus making them stocky.

Egg Plants are the last things to go out: they do but little before hot weather comes, and if put out too soon, get stunted by cold nights. Set out the plants in rich, warm soil. Abundance of manure and care are needed for good success.

Lettuce.—It is of little use to plant lettuce at this season, as it quickly runs up and goes to seed.

Onions need frequent weeding. For near market, half-grown onions put up in small bunches, are more profitable than when left to ripen.

Parsnips and Salsify should be thinned to 5 inches in the row, and hoed frequently, that the weeds may not get a start.

Peas.—Sow for succession, until the hot weather of summer comes, after which they do not pay.

Peppers.—Set out in a warm well-manured place.

Rhubarb.—The flower stalks should be kept cut off. Do not gather the leaf-stalks too late in the season, as it exhausts the plant.

Squashes.—The winter sorts should be planted now. Much care is needed to keep the young vines free from insects. Paris Green may be used; hand-picking takes time, but is effectual.

Tomatoes should always have some sort of support. A form of Trellis, with a treatment of the subject, is given on page 235. The large green worm that makes such quick destructive work with the vines, must be removed by hand-picking.

Flower Garden and Lawn.

Planting is mostly over, and the care of the lawn, walks, and beds of plants, comprises most of the work. It is to be remembered that a small place neatly kept, is more satisfactory than a large neglected one. Do not attempt to do too much.

The Lawn.—In order to have a fine velvety turf, the mower must be frequently used; at least once a week. In the corners, and under trees where the mower cannot go, a sickle must be used. A neat lawn is the leading feature of a well-kept place.

Walks and Drives should be kept clear from weeds, by occasional surface hoeing and raking. Keep the center higher than the edges, and roll to make hard and smooth. Trim the margins.

Bedding Plants should be in their places. Ornamental designs entail much labor. The plants must be kept of a certain hight by pinching and cutting, that the lines may be distinct, otherwise the intended effect of the design is lost.

Climbers need supports, and those not disposed to cling should be tied to the trellis or other object.

Cannas do best started in the greenhouse, and then planted in the open ground in settled weather.

Spring Bulbs, Hyacinths, Tulips, etc., should make a good growth of leaves, after which they may be taken up and put under cover until dry, then stored in a cool place.

Annuals.—Set out the tender sorts started under glass, and sow seeds for succession.

Perennials.—Cut away the flower clusters so soon as they fade, unless seed is desired from them.

Greenhouse and Window Plants.

A stripping of the greenhouse at this season is not necessary. Many plants do better kept in, while others may be provided for a summer display of bloom. Gesnerias and their relatives are excellent for producing a fine show of in-door flowers, as are the showy Pelargoniums. A plenty of air, water, and shade from the hot sun will be necessary. Make all the repairs that the house needs.

Window Boxes, aside from their place at the window, may be used for decorating the porch or piazza. They must not be allowed to get dry. The plants in the windows with shade in the heat of the day and water may be kept looking fresh.

Commercial Matters—Market Prices.

Money has been quite active for this season of the year; partly under the manipulation of speculators. Stocks have been less freely dealt in, and, especially toward the close, have been unsettled, and generally weaker....Real Estate has shown increasing animation in the dealings, and a hardening tendency as to values ...Merchandise has attracted much less attention, notably in the Dry Goods, Boots and Shoes, Hardware, Drugs, Dyes, Fruit, Skins, and Leather. Hides ruled dull and heavy most of the month under review, but leave off more firmly, with a better demand noted. Naval Stores and Petroleum favored buyers, on a tame market....Cotton declined sharply, and met with a comparatively slow sale in the option line, though in fair request for prompt delivery for export....Wool tended to weakness, as to values, on more liberal offerings, and a very moderate call for supplies, especially from the manufacturing interest. The favorable advices from the public sales at London were of little advantage to holders ...Breadstuffs have been moderately active, and very variable as to price—Wheat and Corn falling severely under a pressure to realize; Flour also declining, while Rye, Oats, and Rye Flour were advanced. Toward the close, Wheat rallied sharply, influenced, in part, by a more urgent export inquiry, chiefly for winter grades for the Continent. Corn showed rather more steadiness. Oats left off heavily at reduced figures. Rye also yielded slightly. Supplies of Breadstuffs here had been cut down materially, prior to the arrivals from the Erie Canal, the first tow of boats from which source reached here on Thursday, May 6, adding considerably to the stock of Grain available. Extensive purchases of Corn have been made for shipment at the modified quotations. Spring Wheat Flour closed firmly; while Winter Wheat product closed in favor of buyers. Unusual activity has been reported in Oats, through the month, largely on speculative account....Provisions have been less freely dealt in, even in the option line, and have ruled lower, leaving off irregularly.

The visible supplies of Wheat—embracing the hoards at lake ports, in transit, and on the seaboard—at latest dates, embraced about 22,183,000 bushels,—of Corn, 12,155,500 bushels; of Rye, 545,000 bushels; of Barley, 1,351,000 bushels, and of Oats, 2,105,000 bushels, against on January 31, an aggregate of 30,100,000 bushels Wheat, 13,100,000 bushels Corn, 979,000 bushels Rye, 4,155,000 bushels Barley, and 3,080,000 bushels Oats. Ocean Grain freights have shown only a moderate degree of animation at much lower and irregular figures, but closed rather more steadily, including by steam to Liverpool, 4½*d.* per bushel; to Bristol, by steam, to 5¼*d.* per bushel; to Antwerp, by steam, to 7¾@8*d.* per bushel, and by sail to Cork, for orders for vessels of average carrying capacity—say 3,000 to 4,000 qrs.—4*s.* 9*d.*@5*s.* per quarter of 480 lbs.

CURRENT WHOLESALE PRICES.

	Apr. 12.		May 10.	
FLOUR—Super to Extra State	$3 90	@ 5 40	$3 65	@ 5 25
" Super to Extra South'n.	3 90	@ 8 00	3 75	@ 7 50
" Extra Genesee	5 40	@ 6 75	5 25	@ 6 50
" Superfine Western	3 90	@ 4 75	3 65	@ 4 80
" Extra Western	4 85	@ 8 75	4 35	@ 8 50
" " Minnesota	4 85	@ 8 50	4 75	@ 8 50
RYE FLOUR, Superfine	4 50	@ 5 10	4 65	@ 5 25
CORN-MEAL	2 50	@ 3 20	2 50	@ 3 20
CORN-FLOUR, per bbl	3 75	@ 4 25	3 25	@ 3 90
OAT MEAL, ₱ bbl	4 50	@ 6 75	4 25	@ 6 50
WHEAT—All kinds of White.	1 30	@ 1 36½	1 20	@ 1 26
" Red and Amber	1 15	@ 1 40	1 00	@ 1 30
" Spring	1 10	@ 1 32	1 00	@ 1 26
CORN—Yellow	55	@ 57	52	@ 56
" White	56	@ 58	51	@ 56
" Mixed	53½	@ 55	50	@ 53
OATS	41	@ 49	40	@ 50
RYE	87	@ 92	90	@ 92
BARLEY	55	@ 1 06	55	@ 1 00
HAY—Bale, ₱ 100 lbs	65	@ 90	70	@ 1 00
STRAW, ₱ 100 lbs	45	@ 1 00	50	@ 1 05
COTTON—Middlings, ₱ lb	12¾	@ 13¾	11¾	@ 11¾
HOPS—Crop of 1879, ₱ lb	27	@ 40	27	@ 40
" " 1878, ₱ lb	7	@ 18	7	@ 18
" olds, ₱ lb	4	@ 12	4	@ 12
FEATHERS—Live Geese, ₱ lb	40	@ 55	40	@ 55
SEED—Clover, West. & St. ₱ lb	5¾	@ 7¾	5¾	@ 7¾
" Timothy, ₱ bushel	2 75	@ 3 00	2 40	@ 2 65
" Flax, ₱ bushel	1 75	@ 1 80	1 40	@ 1 60
TOBACCO, Kentucky, &c., ₱ lb.	3	@ 14	3	@ 14
" Seed Leaf, ₱ lb	6	@ 40	6	@ 40
WOOL—Domestic Fleece, ₱ lb	32	@ 60	30	@ 58
" Domestic, pulled, ₱ lb	20	@ 57	20	@ 56
" California	18	@ 45	17	@ 42
TALLOW, ₱ lb	6¾	@ 6¾	6	@ 6¾
OIL-CAKE—₱ ton	29 00	@30 25	—	@32 00
PORK—Mess, ₱ barrel	11 50	@11 65	10 50	@10 90
" Extra Prime, ₱ barrel	—	@ —	9 50	@10 00
BEEF—Extra mess	11 00	@12 00	10 50	@11 00
LARD, in trcs. & bbls, ₱ 100 lb	7 50	@ 7 90	7 15	@ 7 65
BUTTER—State, ₱ lb	20	@ 33	14	@ 25
" Western, poor to f'cy, lb.	11	@ 31	9	@ 23
CHEESE	9	@ 14½	8	@ 13½
EGGS—Fresh, ₱ dozen	9¾	@ 12½	9	@ 12½
POULTRY—Fowls, ₱ lb	5	@ 13	6	@ 14
" Chickens, ₱ lb	7	@ 22	14	@ 35
" " ₱ pair	—	@ —	40	@ 1 00
" Roosters, ₱ lb	4	@ 5	—	@ —
Capons, ₱ lb	16	@ 22	20	@ 26
Turkeys—₱ lb	10	@ 15	9	@ 13
Geese, ₱ pair	75	@ 1 50	1 00	@ 1 50
Geese, ₱ lb	10	@ 12	10	@ 13
Ducks, ₱ pair	50	@ 80	50	@ 80
" ₱ lb	10	@ 16	10	@ 18
DUCKS, Wild, ₱ pair	25	@ 2 00	—	@ —
PLOVER, ₱ doz	—	@ —	1 50	@ 2 00
PIGEONS, ₱ dozen	1 05	@ 3 75	50	@ 2 75
SNIPE, per doz	1 00	@ 1 25	50	@ 2 25
APPLES, ₱ barrel	2 00	@ 4 50	2 50	@ 5 00
STRAWBERRIES, new So., ₱ qt.	15	@ 30	10	@ 25
POTATOES, new, per bbl	4 00	@ 8 00	3 50	@ 5 50
" ₱ bbl	1 00	@ 2 00	1 25	@ 1 75
" Sweet, ₱ bbl	3 00	@ 3 50	2 50	@ 3 25
TOMATOES, new, per box	50	@ 1 00	50	@ 90
TURNIPS ₱ bbl	62	@ 75	75	@ 1 25
BEANS—₱ bushel	1 30	@ 2 00	1 25	@ 1 75
PEAS—Canada, in bond, ₱ bu	—	@ —	—	@ 81½
" new, green, ₱ bag	—	@ 1 80	—	@ —
" new, South'n, per bbl	—	@ —	1 50	@ 3 50
STRING BEANS, new, p. crate	2 00	@ 3 00	75	@ 2 00
CARROTS, ₱ bbl	1 00	@ 1 50	1 25	@ 1 75
BEETS, ₱ 100 bunches	1 25	@ 1 75	—	@ —
" new, per crate	—	@ 1 50	1 75	@ 2 00
CABBAGES—₱ 100	5 00	@10 00	—	@ —
" new, ₱ bbl	3 00	@ 3 50	1 00	@ 3 25
ONIONS—₱ bbl	2 75	@ 6 00	3 50	@ 4 50
CRANBERRIES, per crate	3 50	@ 4 00	—	@ —
SQUASH, ₱ bbl	1 50	@ 2 75	1 50	@ 1 75
SPINACH, ₱ bbl	1 00	@ 2 50	1 25	@ 1 75
ASPARAGUS, new, ₱ doz. bun	5 00	@ 9 00	75	@ 2 50
RADISHES, new ₱ 100 bun	50	@ 1 25	50	@ 1 50
CUCUMBERS, ₱ 100	2 00	@ 6 00	75	@ 1 50

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending May 10th*, 1880, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.*	*Flour.* bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.
23 d's *this* m'th	345,600	2,214,000	3,210,000	76,000	301,000	881,000
23 d's *last* m'th	374,000	1,556,000	2,579,000	69,000	272,000	935,000

* First arrivals from Canal, this year, May 6th

SALES.	*Flour.* bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.
23 d's *this* m'th	336,000	24,856,000*	6,983,000*	207,000	292,000	2,433,000*
23 d's *last* m'th	338,000	23,571,000*	6,104,000*	181,000	383,000	1,918,000*

* Including sales for forward delivery.

2. *Comparison with same period at this time last year*

RECEIPTS.	*Flour.* bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.
23 days 1880	345,600	2,214,000	3,210,000	76,000	301,000	881,000
26 days 1879	391,000	3,769,000	2,441,000	297,000	351,000	938,000

SALES.	*Flour.* bbls.	*Wheat.* bush.	*Corn* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.
23 days 1880	336,000	24,856,000	6,983,000	207,000	301,000	881,000
26 days 1879	441,000	8,504,000	5,763,000	474,000	382,000	1,307,000

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
May 4, 1880	2,140,170	328,739	33,735	86,572	141,577	188,754
May 4, 1879	1,935,402	1,036,039	372,867	232,646	451,492	81,336
May 7, 1878	748,196	263,020	75,229	207,576	570,298	258,827

4. *Exports from New York, Jan. 1 to May 6.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
'80	1,268,500	14,964,000	11,934,000	671,400	235,000	68,000	176,000
'79	1,036,171	14,460,284	9,937,264	1,154,809	86,290	176,388	150,155
'78	904,902	14,932,098	6,690,751	1,340,395	1,355,407	223,827	212,106
'77	436,097	3,124,698	7,062,226	439,605	123,083	60,141	196,874
'76	728,579	7,614,910	4,386,520	102,604	——	75,290	319,539

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Apr. 13	11,664	46	2,584	23,332	36,145
Apr. 19	13,477	76	4,120	24,516	38,830
Apr. 26	13,836	77	5,040	28,164	35,217
May 3	17,151	101	6,140	31,325	34,097
May 10	11,297	44	5,615	25,287	38,636
Total for 5 Weeks	67,425	344	23,499	132,524	182,925
do. *for prev. 4 Weeks*	50,366	724	7,895	105,935	126,873
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	13,485	69	4,700	26,505	36,585
do. do. *last Month*	12,591	181	1,974	26,484	31,593
do. do. *prev's Month*	10,442	208	956	28,369	31,187

Prices for beeves the past five weeks were as follows:

WEEK ENDING	*Range.*	*Larger Sales.*	*Aver.*
Apr. 12	7 @11 c.	8¾@ 9¼c.	9¼c.
Apr. 19	7¼@11 c.	9 @10 c.	9¼c.
Apr. 26	7 @11 c.	9 @10 c.	9¼c.
May 3	6 @10¾c.	9¾@10 c.	9¾c.
May 10	8½@10½c.	9 @10 c.	9¾c.

Beeves.—There has been a gradual increase in the receipts during the past five weeks. The week ending May 3, was remarkable in the Live Stock Trade in New York, the receipts of beeves rising to the unprecedented number of 17,151, or 2,911 more than were ever before received in a single week. The foreign shipments are very large. As the warm weather comes on, the market will be less satisfactory, and the prices somewhat lower. The quality of beef offered in the market, has been of good quality. A few poor steers brought only 8c; but most sold for 9@10; Choice lots to dress 56 pounds, from Kentucky, reached 11c.... **Milch Cows.**—There was also a gradual increase in the number of cows sold in the market, though the receipts were very limited. Market very quiet, and prices about the same as last month, namely, $25 to $40 per head for common cows, and $45 to $55, for those of prime order..... **Calves.**—The month opened with a good demand for live calves, which sold readily at an advanced price. Soon the receipts grew heavy, and the price fell gradually, until the close of the month. Buttermilk calves, and mixed lots, sold at 4@4¾c., and common to choice Veals, at 4½@6c. Extra lots, brought $6.25@$6.35 per hundred pounds..... **Sheep and Lambs.**—There was a considerable increase in the number of sheep and lambs received in the New York market, for the month ending May 10. At the close, the market was quite unsatisfactory. Clipped sheep at 4¾@5¾c., with a few extra at 5¾c., clipped yearlings 8@8¾c., unshorn sheep 6½@7¾c. Southern spring lambs brought 7¼@8¼c., State do., 7¼@9c..... **Hogs.**—There has been a falling off in the receipts of hogs, with the market dull, at $4.50 per hundred.

The Horse Market has been active all through the month. The demand for driving and coach animals is extraordinary, not only for use in cities at home, but for shipment to European markets. The prices for such animals range from $300 to $500 per head. Street car horses are selling at $115@$130, but at the close of this month the wants of the car companies will be largely supplied, and the market for these horses will weaken. The demand for fine carriage horses continues, and many more could be sold if they were in the market. Well trained stylish horses sell readily at $300@$350 per head.

Prices of Feed.

Cotton-seed meal	per ton.	$30.00
Linseed-cake meal	"	37.50
Middlings	"	24.00
Bran	"	23.00
Corn-meal	"	23.00

Prices of Fertilizers.

Nitrate of Potash (95 per cent.), per lb.	8 @8¼c.
Sulphate of Potash (potash 44 per cent) per lb.	3½@4 c.
do. do. (potash 27½ per cent) per lb.	1¾@1¾c.
German Potash Salts (potash 12 to 15 p.c.) p. ton.	$16.00@18.00
Muriate of Potash (potash 50 per cent), per lb.	2 @2¼c.
Nitrate of Soda, per lb	5@5¼c.
Sulphate of Ammonia (25 per cent.), per lb.	4¼c.@4½c.
Dried Blood (ammonia 13 per cent) per ton	$40.00@45.00
No. 1. Peruv. Guano 9 p. ct. ammonia, standard, ₱ ton	$55.00
do. do. Lobos, do. do. do	46.00
do. do. guaranteed, ₱ ton, cargo K	56.00
Soluble Pacific Guano, ₱ ton	45.00
Excelsior Fertilizer Works, Fine Ground Raw Bone	55.00
Mapes' Complete Manure (clay soils) per 1,000 lbs	25.50
do. do. do. (light soils) per 1,000 lbs	25.50
do. do. do. "A" Brand, (wheat) ₱ 1,000 lbs.	30.00
do. Corn Manure, per ton	49.00
do. Beet do. do.	49.50
do. Cabbage do. do.	47.50
do. Tobacco do. do.	52.00
do. Fruit and Vine Manure, per ton	37.00
Stockbridge Rye Manure, do.	45.00
" Wheat do. do.	45.00
" Seeding Down Manure, do.	40.00
Bowker's Wheat Phosphate, per ton	40.00
Baugh's Raw Bone Phosphate, per ton	33.00
Baugh's Manure for Tobacco and Grain, per ton	45.00
Walton, Wham & Co.'s Raw Bone Phosphate	40.00
Gypsum, Nova Scotia, ground, per ton	8.00

A Crop of Frogs.—Seth Green is of the belief that many farmers have fortunes in their present worse than worthless frog ponds. A little care in the cultivation of frogs, he thinks, will bring good returns in a large crop of food for family use, and also for the market.

LAST CALL.

Important Notice.

We invite special attention of all Readers to the following: For the reasons stated, we prepared a large and extensive list of Premiums. This was done early last year, at a period of *low prices*, and such favorable terms were obtained that the offers were very liberal. By reason of the special arrangements, all our readers can obtain useful, desirable articles and Books at very low rates *when* taken as premiums. Many thousands have already availed themselves of these advantages, and thousands of others *should do so*

AT ONCE,

for the premium offers must close this month. The prices have advanced generally, and our contracts for obtaining them on the terms offered *end with this month* (June). ☞No Premium Articles can be given which are not called for this month.

But there is plenty of time before June 30, to fill up any premium lists already started, and to form **new lists** *and secure any Premium desired.*

We hope that, on their own account, our readers generally will embrace this opportunity to get the Books and other articles available, while it is in our power to supply them on the liberal terms stated in our Premium List. (A copy of this list will be promptly mailed free to any one desiring it and sending for it by postal card.)

BOOKS and LIBRARIES, for one's own use, for a neighborhood, for Farmers' Clubs, etc., ought to be obtained *this month* through these premium offers. Ten or more persons forming a Club of Subscribers get not only this Journal for a year, but two-thirds of the subscription money back in their own selection from 847 **Good Books.**

containing a great variety of Items, inc'uding many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

Putting Plants to Sleep.—In a recent lecture by the President of the British "Association for the Advancement of Science," Dr. Allman presented some experiments which show that the life of a plant, in at least one particular, is not so very different from that of an animal. A Sensitive Plant, the leaves of which, as many of our readers are aware, will "wilt," or fall down at the slightest touch, was confined under a bell-glass in which a sponge filled with ether had been placed. At the end of half an hour the plant was without "feeling"; all its leaves remaining extended, and showing no inclination to drop when touched. After being removed from the bell-glass, the plant soon regained its peculiar sensitive properties. Ether will also arrest the germination of seeds for a considerable time, without doing any injury to them.

Agriculture in Pennsylvania.—The Pennsylvania agriculturists have learned that "nothing succeeds like success." Last fall the Agricultural Society had a fair on the Centennial Grounds and in the "Main Building," and great was the success thereof. The Society's Treasury is astonished by a sensation of fullness, and its officers are making arrangements for a show this fall which promises to be a remarkable one. The Penn. Horticultural Society will coöperate, and the refinements of agriculture in its widest sense, will be presented by them. But to keep the "boom" a going, the State Board of Agriculture will do some preliminary agitating this month. A Summer Meeting is to be held at Gettysburg on Wednesday the 9th, at 2 o'clock P. M. A large number of practical and interesting subjects will be presented by competent persons, and discussions are to follow. No limit is set to the duration of the meeting, but it is to be protracted until the business is disposed of. Nor are there any restrictions as to who may attend, "the public are invited to attend, as the discussions will be open to all." Information may be had of the Secretary of the Board, Thos. J. Edge, at Harrisburgh.

What This Number Contains:

The Work of the Month, with numerous helpful hints about it for this hurried busy season, on pages 214 to 216, and the June Bee Notes, page 220.

A Special Feature of this paper is the KEEPING of ONE COW, in Villages and Cities, as well as the Country—its convenience, healthfulness, comfort, and especially its economy. See example and notes about it, page 221, and the Prize Essay, page 230.

The most famous living Cow is pictured and described on page 225, and Dairying Hints on pages 226-7-8.

Noteworthy Herds of Cattle are talked about page 226.

Curry Combs are numerously pictured and described, pages 228-9.

New Suggestions for Iron Fence Posts, that may perhaps prove of great general importance, with other talk "on the fence" question; pages 222-3.

A Commodious $1,500 Country House, with plans and detailed specifications will meet the actual wants of many, and be suggestive to multitudes of others; page 224.

The Lawns about our houses have a new help to neatness in the "Lawn Sweeper," described on page 221.

The Balloon Humbug has "gone up," with sundry congeners; pages 218-19.

Weather Indications for Farmers generally, are to be helped forward by what the "Signal Service" is planning. See the new Farmers' "Weather Case," page 231.

Gardening in Public Institutions, by Peter Henderson; page 234.

For Rock-work Plants and others, see pages 233-4.

Hints and Helps for Farmers of sundry kinds; pages 226-7-8-9, and elsewhere.

Household Matters in quantity and variety, pages 236-7.

And for Boys and Girls there are sundry useful things, with pictures, pleasing, puzzling, etc., including the Farmer Boy's first sheep shearing, on pages 238, 239 & 240.

The "Basket Items" have no relation to a "waste basket," but are *condensed* information on a great variety of topics. See pp. 217-8-9, 220, and over on pp. 245-6-7.

It is well to always run one's eye over the advertising pages of this Journal, and see what is offered, by whom, etc., as a source of information. There are usually *new* and valuable implements, and other things worthy of attention, while no vile or quack medical nostrums are present to disgust the old, or deceive or allure the young. No man is admitted if there is not good reason for believing that he has both the *ability* and *intention* to do what his advertisement promises. The Editors have full veto power over every advertisement offered, and they exclude the advertisements of every party whom they would not themselves patronize, if wanting the articles offered. ☞When corresponding with any of these advertisers, sending for their circulars, catalogues, etc., it is well to inform them that you are a reader of this Journal. They will know what *you* expect (and what *we* expect) of them in the way of prompt and fair treatment.

Hastening Prairie Sod Culture.—The long time general practice has been to break up prairie sod in June and wait until the following *year* for it to rot. In "Editorial Notes by the Way," in Minnesota, published in the *American Agriculturist* last November, p.p. 457-8, instances were given of success in putting crops at once upon the newly broken prairie. Mr. Clarkson, in Nebraska, first turned a 3-inch sod and followed with another plow throwing an inch of the lower soil upon the sod; then harrowing it well he planted it immediately. Mr. Youmans and Mr. Nevins, in Marshall, Minn., broke the sod in May to July; in September they cut the sod with a disk-harrow or sod-cutter, and with a deeper plow turned them under, and got a much larger yield of spring wheat. A letter before us, from Jno. A. Owen, Esq., in Central Dakota, dated April 15, says: "We are using the Randall Wheat Harrow on sod broken last week, and sowing wheat at once. It puts the land in better condition than most of last year's breaking is in—cuts the sod all to pieces. Costs about $30. Tell all parties coming to the new prairies to get them by all means, or at least some wheel-harrow."—We suppose he means some sod-cutting harrow. It is certainly of great importance to new settlers to gain six months or a year in getting the prairies into crops. We invite further correspondence from those having experience in this matter.

"Canoe and Camera."—This is the title of one of the most entertaining and exquisitely illustrated books of the season, which the Orange Judd Co. have in press, and which will be ready when this reaches our readers. It is the result of recent, personal explorations by the author, Mr. Thomas Sedgwick Steele, being, as he terms it, "A Photographic Tour of Two Hundred Miles through the Maine Forests." The work is embellished with sixty illustrations of scenery and character, by well known artists, with new Maps of the State prepared expressly for this book, and the story is told in a most fascinating manner. It is one of the most delightful books of the year. Sent post-paid from this office on receipt of the price, $1.50.

Milk and Milking in Texas.—It may seem strange to those who know of Texas as the great grazing State of the Union, to learn that nothing is more scarce there than milk, and that the owners of vast herds use butter brought from northern dairies. This was our experience 25 years ago, and we learn from recent correspondence that matters in this respect have not changed. A friend in Anderson Co., "W. B. W.," in reference to an article published some time ago on "Allowing Calves to Suck," writes, describing the manner in which the relations between cow and calf are managed in that State. It reminds us of what we have seen a hundred times, and is of interest as showing the very different management given to animals, according as we raise them entirely for their carcasses—beef—or for the products of their bodies when alive. Our correspondent writes: "Here in Texas, it is almost the universal custom amongst farmers to allow the calf to suck. When a calf is allowed to draw the milk from a young heifer, the mother has been taught a lesson which she will never forget, she has learned to hold the milk from the hand of the milker, and retain it for the calf, and will never afterwards give all her milk freely. It is amusing to see the process by which many Texas farmers manage to draw half a gallon or so of milk from a fresh cow. First, the calf has its turn, and takes a good pull, the cow in the meantime, with half-closed eyes, contentedly lets the milk down, after a while the calf is gently moved to one side, and fastened to the fence or held by a rope, by an assistant present for the purpose; the milker now takes his turn, and as cautiously as possible, draws down the milk. Presently a change takes place, the stream gets smaller and then suddenly stops. The cow, now wide awake, has turned her head and discovered that her offspring is not the milker, and no more milk will she give, except for the calf, which is now untied and allowed to have its turn again. The milk flows once more, and again slowly and cautiously the milker (with quart can in hand) takes his stand (for sitting is out of the question) on the opposite side from the calf, and they both pull together, the outwitted mother, not knowing who she is giving the milk to, calmly resigns herself to them both. [We have seen this performance varied by the Mexicans, where the milker is usually a woman. The calf begins to suck, and is pulled away by the milker, who takes its place, armed with a short club. The milk is received in a gourd or earthen dish, and the woman, between milking with one hand and holding the dish and clubbing the calf with the other, is very busy. Sometimes, if the calf is a strong one, milk is not the only thing that is upset. ED.] This is the usual custom all over the country, the consequence of which is, that between the two the cow is rarely milked clean, and in three months she is dry altogether, or the trouble of getting a pint from her is so great that it is willingly resigned to the calf. I know a dairyman in this neighborhood who owns a lot of fine milk cows (as he terms them); he is now milking *twenty two*, and from that number takes *sixteen* gallons daily. One may visit ten farm houses, the owners of which keep from six to a dozen cows, and at eight out of the ten there cannot be found milk sufficient to whiten a cup of coffee. In this town of several thousand inhabitants, situated in a fine grazing county, it is almost impossible to buy country butter. During the winter months we use western altogether, at from 35 to 40 cts. per lb., while milk direct from the dairyman costs ten cents per quart in summer, and from 12½ to 15 in winter. One reason why such enormous prices prevail in the best grazing State of the Union, is the utter want of management with the calves, and the pernicious practice of allowing the cows to be milked by them."

Damage by Insects.—It is estimated that the amount of injury done by insects in the United States is $200,000,000. The good they do is another question, to which no answer is given, and cannot be given in figures.

The Size of Cows.—The size of the cows a dairyman may desire for his herd, is somewhat a matter of fancy; but, other things being equal, when the cost of feeding, etc., is taken into consideration, the medium-sized cows are the most profitable. Cows are machines for making coarse food into that of a more concentrated and valuable form, and, like other machines, there is a size that does this work with the greatest ease, with the least waste, and therefore greatest profit.

Do Thistles Enrich the Soil? — It is stated that a good growth of thistles (Canada) leaves the soil richer than before. This is doubtless the truth, and the same may be said of any crop, provided it is not removed from the ground. This is merely the general way that soil is made rich in the organic elements that are so essential to the growth of profitable crops. But there is more than ordinary ability possessed by the thistle plant to enrich the soil. The roots penetrate to a great depth, and bring up large quantities of potash and other valuable constituents, and deposit them upon or near the surface, as their stems and leaves decay. Again, the mechanical action of a vigorous growth of thistles is to loosen, pulverize, and render the soil more accessible to the roots of other plants. Granting that the action of the thistle plant upon the soil is good, we must look at the other side of the question. What is the cost of this method of improvement? While the thistles hold possession no paying crop can be obtained. When useful plants are sown, they must be carefully tended, or the thistles will crowd them out. Lastly, the bringing up of valuable substances from the subsoil, can be as well done by plants that are themselves useful for food, as clover, etc., and no miserable weed afterwards left to infest the ground. The best that can be said of the thistle is that it is a miserable prickly pest, which, when allowed to have its way, loosens and enriches the upper soil.

The Tenth United States Census will be taken this month, and all persons should be ready to give prompt, full, and accurate answers to the questions presented by the Census taker. Any opposition to an open statement of the plain facts springs from an ignorance of the duties of the Officers detailed by the Government to gather the information, or a thoughtless disregard of the important objects for which the statistics are to be obtained. The value of the Census depends upon its fullness and accuracy, and to secure these ends it would be well for all persons to take a little time and get ready to answer the questions that *must* be asked. A rainy day may thus be employed with profit to all concerned.

Roots.—It is often the case that one has a small piece of ground that can be easily put into roots. An acre or so thus occupied will give excellent returns for the trouble of sowing and attention while growing. Sugar-beets may be sown now, and Ruta-bagas and Turnips a month or six weeks later. Where an early crop has been removed, or one failed, it may be useful to try a late crop of roots, manuring well before sowing.

Clearing a Drain.—If the drain is a short one, such as that which leads from the house to some spot not far distant it is often the quickest to take up the whole drain. Such drains, if stopped at any one place, are generally more or less filled all along and need a cleaning throughout. When the drain is a long one, and the locality of the stoppage is known, then open at, or above the point of obstruction, and after removing the impediment, the drain should be flooded with an abundance of water at that point. A force-pump is an excellent aid in this work, as it will give a pressure that will, in many cases, force all small obstructions from the drain.

Science vs. Common Sense.—Prof. Huxley hits the nail upon the head—and this is a thing that he is very apt to do—when he says: "Science is simply common sense at its best, that is, rigidly accurate in observation and merciless to fallacy in logic." When facts are seen as they really are, uncolored by prejudice, or obscured by ignorance, and are weighed in the balance of a cool sound judgment, we may say they are treated scientifically, and the man who can do this is scientific, as common sense, which he exercises intelligently. Such a man may be a mechanic, or a professor in a college; a farmer, or a lawyer. Let it be understood that science is not above the masses, because the masses have common sense, and it may be intelligently exercised.

The Cabbage Flea.—"H. G.," Simmons, Mich. This is often very destructive in the seed-bed, and where it is known to abound, it is best to anticipate their coming, and just so soon as the young plants appear—when they first break through the soil, give them a dressing of air-slaked lime, or a mixture of ashes and plaster. Equal parts of unleached ashes, sifted to remove bits of coal, and land plaster, thoroughly mixed together, and kept in a dry place, is not only useful to keep off small insects, but in its application the soil is benefited. Market Gardeners, near New York, use shell-lime for this purpose; it is exposed to the air until slaked, and then kept closely covered; where shell-lime can not be had, ordinary or stone-lime will answer; the other is only preferable because it makes a finer powder. Either of these sifted over the young plants, so as to cover them with the dust, is the most effective remedy thus far found for the little beetle, which, from its ability to jump, is popularly known as a "flea." Where but a few cabbage plants are required, they may be raised in boxes elevated 5 or 6 feet above the ground; this distance being too great for the leaping powers of the insect.

Soil for Sugar Beets.—The best Sugar-beet, when properly grown, should be conical, and with a single tap-root. To grow such beets the soil should be deep, mellow, free from stones, and abundantly rich. A deep sandy loam, with a plenty of vegetable matter, may be expected to produce, with clean culture, a profitable crop of Sugar-beets. A strong clay is not suitable, neither is a soil that is low and naturally wet and cold.

Sundry Humbugs.

Sometimes a fraudulent scheme shows such an amount of ingenuity and knowledge of human nature, that we are tempted to overlook the rascality of the thing in our amazement at its audacity and 'cuteness. For example, handbills were recently largely circulated in New England, setting forth that there would be at a certain place on a given date a "Grand Mammoth Balloon Ascension." The bills before us give Bridgeport, Conn., as one place of this remarkable show; but the same bills have been circulated near other large places in New England, and the country for 20 miles around there well notified that the "ascension" would take place at these towns on given days. This handbill is something remarkable. On one side it proposes to have

16 MAMMOTH BALLOONS IN THE AIR AT ONE TIME.

Then each of these balloons is to "carry two or more daring æronauts, who will, when the balloons reach an altitude of 3,000 feet from the ground, LEAP OVERBOARD and float gently down to mother earth again by means of parachutes."—There is a picture with many balloons and their occupants going down in parachutes. It must be, as the bills say, a "Marvellous Spectacle," these chaps coming down, while there are "fifteen beautiful tricolored balloons soaring away towards the sun," and we may add in the words of the showman about the eagle—"the higher he flies the nigher he'll come to it."—But all this strikes us as a great waste of balloon material, for the æronauts to leave their balloon, to go off to the sun and get burned up. But as we are told that the expenses are in part paid by a "subsidy allowed by the governments" of the different æronauts, we suppose they can stand the loss. But this side of the hand-bill is nothing to the other side. There we have

"A MAGNIFICENT AND THRILLING BALLOON WEDDING

away up among the clouds." This is all to be done in, or on, the "Sixteenth Balloon," which will represent nothing less than "Cupid's Bridal Chariot." This balloon holds "70,000 feet of gas," but that's a trifle to the amount used in inflating the description of the wedding. Its all very funny, and at the same time very wonderful. When the ceremony is over, the balloon is to be lowered, the bride to be presented with $100 in gold, then "the wedding party will be started on their heavenly tour of bliss." Whether this "heavenly tour" means that they will be set adrift in the balloon is a matter about which we are left in doubt. When the bill calls these

"GRAND, SUBLIME, AND NOVEL ATTRACTIONS,"

we feel how weak the language is when it would express a "big thing." No wonder that people crowd by thousands to the towns where all these wonders are to be seen, all for nothing too. To be sure there is no Balloon Show at the time and place advertised, but people having come out for a holiday have some money to spend, and they fortunately find that there happens to be a circus at the place and they can go to that. It is all

A DODGE OF A TRAVELLING CIRCUS

to draw a crowd at the place and on the date where it is to be.—We should say, by the way, that the show is not Barnum's, as one of our correspondents quietly intimates; he has a way of presenting enough attractions inside of his tents to induce people to come to them, and would not at any rate resort to *such* a miserable deception. As this fraudulent bill is circulated solely in rural communities, we think it proper to warn our friends against being deceived by it. We have heard that the trick was played quite extensively in Texas and some others of the Southern States last year....There are some schemes that are not really humbugs, but they allow

PEOPLE WHO WISH TO BE HUMBUGGED

to deceive themselves. Take, for example, certain silverware which is extensively advertised, four showy pieces for $5. It takes not much figuring to show that here a caster, a cake-basket, and two other large pieces, are offered at $1.25 each. No doubt that those who receive these articles will feel that they have been defrauded. We have seen the articles sent out by one establishment, and think they are as good as can be afforded for the money. But what does one want of plated casters and cake-baskets at $1.25 each? The majority of people fail to consider that a thing offered for $1.25 is not likely to be worth any more, and a cake-basket that has not probably near $1.25 of actual silver on it is not worth much. Those who wish *low-priced* plated ware will have no difficulty in finding it, but it is far from being *cheap*.

RECIPE TO MAKE SOAP.

There are parties who sell recipes to make various things: recipes for the manufacture of Honey, for making Cheap—and dangerous—Illuminating Oil, or for making of somebody's Soap, are among the most common. One of our readers sends a recipe for soap, and asks what we think of it. In the first place the recipe, though it says so, is not for "making" soap, but for mixing it with other things. It starts with "any kind of bar soap," to which are added a solution of Caustic Soda, and Alum, Borax, and Benzine. These are melted and mixed together, and there is no "making" of soap about it. The addition of Soda and of Borax to soap in washing is sometimes practised, Alum is altogether useless, and the small quantity of Benzine directed can make no difference whether it is put in or left out. The humbug attached to the thing is the threat: "The Holder Hereof is Warned not to Divulge or Make Known any of the Ingredients Comprising this Soap,

UNDER PENALTY OF THE LAW."

We should like, just for the fun of the thing, to know *what* law? If a person paying a dollar for the recipe agrees that he will not give it to another, he is probably morally bound to keep his promise, but as to any penalties of the law, that is simply nonsense.....Inquiries begin to come about

"THE CO-OPERATIVE COMPANY OF CANADA,"

which proposes to sell all sorts of dry goods at very low prices, or as their circular says at "Fifty to One Hundred Per Cent Cheaper" than the same goods can be bought in stores. We as yet know nothing of this "Co-operative Company" beyond what its Circular states, and this reminds us strongly of a "Co-operative Store" at Chicago 8 or 10 years ago, that had the same name and made similar offers. In that case we could not see where the catch was, but feeling that where goods were continuously offered at much less than real value, there must be something wrong, we advised caution. That Chicago thing went on swimmingly for a while, gave people a sufficient number of good bargains to inspire confidence; those who bought once found the things so cheap that they would order again for themselves and their neighbors. One day the Co-operative Store ceased to co-operate, and the co-operators were not to be found, and a large number of persons are still waiting for the goods for which in their confidence they had sent their money. Whenever staple articles of trade are offered below their real value it is well to be on one's guard. Such things may be occasionally sold at a sacrifice, but it can not be done as a regular business. Besides if sold "100 per cent below" the price asked by others, what is that but offering to *give away* the goods? Our Arithmetic says "100 per cent" is the whole of a thing, and the only thing we can think of likely to be *sold* in that way is a piece of property "mortgaged" beyond its value, the purchaser being responsible and assuming the "bond." ....It is well

TO REMIND FARMERS

that this is a favorable season for the visits of the "Mowing-Machine Knife-Sharpener man." He will sell you one very cheap on condition that you will act as agent for their sale to your neighbors; you will please give him your address that the articles may come all right. In due time you will hear that the rich "note shaver" up the road, has been buying a piece of your paper, or be notified that the bank at the next town has discounted a note of yours. It may not be knife sharpeners, but whatever it may be, don't act as agent for travelling venders, and don't sign your name for any purpose at all, not even your address, for any one unless you *know* him well.

MEDICAL MATTERS.

When we take up the pamphlet or circular of a new medicine we are sure that it will contain an account of how the stuff came about; the venders of these preparations seem to think it necessary to publish some remark-

able tale. At one time it is a dying man who has just strength left to direct his son to the secret drawer that contains the recipe; at another the recipe is picked up on the sea shore, it having been placed in a bottle and thrown overboard from a sinking ship; or one has to go to Germany to learn about American plants, but the favorite way is to learn, as Eddie Eastman did, of the real wild original ab-original—and this turns up in no end of forms. Here is the story of Doct. Morse's

INDIAN ROOT PILLS,

and a very touching one it is. Doctor Morse had a father, and after spending large amounts in having him educated as a doctor, he sent his son off to get finished among the Injins, or as the pamphlet has it "to learn their successful manner of curing disease in nature's own way from plants and roots." Father Morse was sick and his son was still among the savages, he got sicker, he was thought to be dying and "every eye was bathed in tears," but "a rumbling noise was heard in the distance, like a mighty chariot winding its way hither, when all at once a fine span of horses [color not stated, but they were "fine"] before a beautiful coach [not behind it] stood before the door, out of which alighted a noble and elegant looking man."—The story is soon told.—This was Dr. Morse, the son; he just went to his carriage and took out some plants and roots that he had learned about "from the Red Men of the Forest," gave the stuff to Morse the father, who didn't die at all, but at the age of 95 rode 35 miles "in order to spend his birthday with the celebrated doctor, his son"—and if you don't believe it, there's a picture of the Senior Morse reading the Bible.

THE MORAL OF IT ALL IS.

If you are sick and want to be well, take these Indian Root Pills. When we wade through all this dreary stuff, with which the literature of quackery is filled, we are forced to the conclusion that such stuff is believed, for there is scarcly one of these various pills, syrups, and other nostrums, that does not give some such ridiculous story of its origin. All these stuffs, like their pills, start out with the statement, that all disease springs from "impurity of blood."—To get well, purify the blood—these pills purify the blood, take 'em and be well. Its all as plain as logic, and all an outrageous swindle upon credulous and ignorant people.....Inman is not alone

IN THE "FREE" RECIPE LINE.

One is sent out by a person in Rochester, which differs from Inman's recipe, in using some terms that are well known in medicine and pharmacy, but there are others that are not. To get the ingredients, one must go to a "botanic drug store," which are few and far between. It may be that all the constituents of the recipe *may* be had at such a shop, but the names given, are not such as are recognized in science, though they may have a meaning in "botanic drug stores." But the drugs are at any rate difficult to procure pure, and it all amounts to the same old story—The advertiser has "made arrangements for their importation," he can always have some of the pure stuff, which can be had for a certain sum. We are told that the "purpose of making the remedy known, is not to realize money,"—of course not, for there is the talk about "substituting joy for sorrow,"—"defeating empiricism,"—"duty,"—"benefit my fellows,"—"went about doing good,"—but the stuff may be had for $3. Is it possible that the writer of such goody goody talk, can suppose that his hypocritical cant is not all seen through? And yet, alas, it is not.

The Liver Fluke, or "Sheep Rot."

Within the last few months there has been great destruction of life among the sheep of Great Britain, from the "Rot," which is the result of an unusual development of the liver parasite known as the "Flukes," (*Distoma hepaticum*). These animal parasites, which are something more than an inch long when full-grown, take up their abode in the passages leading to the liver, and when numerous, choke up the smaller channels, arrest the flow of bile, and otherwise derange the action of the liver. "The sheep suffer first from jaundice, which causes the skin and eyes to become yellow. At this stage, the sheep thrives and fattens rapidly, and the yellow color of the fat of many carcases of mutton that are sold in the market is due to this bilious derangement. In a short time the sheep fails, the skin and eyes become white and bloodless, a watery tumor appears beneath the jaws, the abdomen swells from dropsy, the wool becomes harsh and easily parts from the skin, and after lingering some time, the sheep dies completely rotten, with every organ diseased." A pasture can become tainted with and communicate Rot to healthy sheep in the following way: The sheep infested with Flukes, pass the mature worms and their eggs, which lodge in the ground. The eggs soon hatch, and the young worms find a host in the mud snails common in low pastures. When these snails are swallowed by sheep—as they frequently are—the "fluke" reaches its most desired quarters, where it is most destructive. Sheep that are pastured on dry land, are exempt from this trouble. When the Flukes are already in the sheep, a cure may be often found in the use of the following mixture: Ground Ginger, 2 oz., Saltpetre, 3 oz., Carbonate of Lime, 1 oz., Common Salt, 2 lbs., with 6 quarts of Water, and the same quantity of Spirits of Turpentine. A dose of two oz. of the mixture, given at intervals of four days, may effect a cure, if used in the earliest stages of the disease. When the Flukes are sufficiently numerous to produce the symptoms of Rot, the animal is past help and should be killed at once.

Top-Dressing for Grass.—"A. S. P.," Flatbush, L. I. An excellent artificial fertilizer for grass is Peruvian Guano; it contains Phosphoric Acid, Potash, and Nitrogen (in the form of Ammonia Salts), the three important constituents most frequently lacking when grass and other plants are not doing well. The guano costs about $60 per ton, and may be used in doses of 150 to 200 pounds to the acre, at least once a year. Apply it now just before a shower, that the rain may take it at once to the roots of the plants and quick returns obtained.

Ladders.—A neighbor of ours wants to trim a vine that is running up and over his piazza, and has neglected it because there is no means at hand for getting up to the much needed work. This is but an illustration of the many cases in which, if a ladder was at hand, important work could and would be done, which for the lack of one is neglected. There is often more time spent in doing a piece of work, in a left-handed and imperfect way, than it would have taken to have first constructed the ladder and then done the job. In haying and harvesting now soon to be upon us, a ladder is often the one thing needful to get at some out of the way place, off of some mow, stack, or even load, and just before the rush, it would be proper to provide a ladder for the emergencies of the season. All can not make handsome ladders, but every one can construct a strong one that will serve his purpose. A straight pine pole sawed lengthwise through the center, and fastened together with "rounds" of oak or other hard-wood, makes a good ladder and is quickly done.

Washing of Hill-Sides.—One of the most successful methods of preventing serious damage from washing of cultivated hill-sides during heavy storms, is to terrace the hill by plowing. At short intervals two or three furrows of the soil are turned down hill, thus making a nearly level bank at short distances, as you pass down the slope. The last furrow makes a channel in which the downward water is caught, and may be carried off at one side of the hill—at any rate it will arrest the rapid downward flow, and give the water more time to soak into the soil. A hill-side, specially given to washing, should be put into grass after being terraced. With terracing and a firm sod as a covering, very little damage may be feared from gullies made by descending water.

Old Rules in Old English.—Gervaise Markham, in his book entitled, "Of the Hunting Horse," 1668, gives directions for "dressing" a horse as follows: "For the manner of his dressing after he is uncloathed, you shall first curry him from the tips of the ear, to the setting on of his tayl, all his whole body most entirely over with an iron comb, his leggs under the knees and cambrels only excepted; then you shall dust him, then curry him again allover with a round brush of Bristles, then dust him the second time, then rub all the loose hairs away with your hands wet in clean water, and so rub till the horse be as dry as at first, then rub all his body and limbs over with an hair-cloath: Lastly, rub him over with a fine white linnen rubber, then pick his eyes, nostrils, and feet very clean, and so cloath him, and stop him round with wisps, if you water within the house, otherwise saddle him after his body is wrapt about in a Woollen cloath, and so ride him forth to the water."

The Test of an Animal.—The blind devotion to the pedigree only, that prevailed a few years ago, has in great measure passed away, and intelligent breeders have come to understand that something more than a long line of recorded names is necessary to make an animal of value. A good pedigree is one that has the animals making it, of the very best quality, and that quality uniform and identical. Aside from the high standard of the ancestry, breeders look more to the animal itself—in other words, more to its own record of what it has done and can do, than to the fact that its parents, through a long line, have their names in the Herd-book.

Stagger Bush.—Our inquiry about "Stagger-Weed" has brought a note from Mr. P. Sutton, Lackawanna Co., Pa., concerning the effects of the shrub popularly known as "Stagger-Bush." This, the *Andromeda Mariana*, is a very showy shrub, from 2 to 4 feet high, with pure white flowers, looking very like large Huckleberry blossoms. Unlike several of the Andromedas, it is deciduous, and when the new foliage comes out in early spring, it is greedily eaten by young cattle when first turned out. These, Mr. S. says, are made very drunk, and sometimes die from the effects of the poison. The popular remedies are: bleeding, by slitting the ears and the tail; giving salt, or whiskey, and sometimes a half-pint of melted lard. The plant extends from Southern N. England to Florida, and sometimes is very abundant.

Foot Rot, Scab, etc., in Sheep.—When a fertilizer for plants or a remedy for diseases of animals is to be advertised in our columns, it is a "condition precedent" as the lawyers say, that we shall know exactly what the article is composed of. While we wish on general principles that there were no such things as secret preparations, yet they are often convenient, and it is frequently cheaper to those who would use such articles, for them to purchase them ready-prepared for use, than it would be for them to undertake to prepare them on a small scale themselves. Buchan's preparations for sheep can hardly be termed secret preparations, as the terms Cresylic Dip and Cresylic Ointment indicate at once that their active ingredient is Cresylic Acid—one of the coal-tar products, and whatever else is in them is merely for making easy the application of this. These preparations have been so long before the public that they may be regarded as standard articles, and they are successfully used for the various external parasites that infest sheep over a wide extent of country.

"Kansas Millet."—It is very difficult to keep the run of the common names of the grasses. T. Overton, Hamilton Co., Kans., sends a package of seed of a grass called in his locality, "Kansas Millet."—An inspection showed the seed to be that of *Panicum Crus-galli*, the Barn-Yard Grass. This is generally known as a weed, but in some localities it is cultivated as a hay crop. In Dec., 1875, we gave an account of its culture in Ill., and now we are glad to add the testimony of Mr. Overton, who says, "It is an excellent forage plant. I think it would be good for soiling."

Beautiful Dried Fruit.—Those who see the dried apples at the stores that have a tempting whiteness, being about as light colored as the fresh fruit, no doubt wonder how they can be dried so nicely. The fact is that such fruits are not only dried, but bleached. They are subjected to the same agent that is used to give hops a bright color, and to impart to straw hats their whiteness—viz.—sulphur. It will be recollected that we gave last year an account of the Zimmerman Fruit Dryer and its workings; not long ago the inventor wrote us that he had been experimenting in bleaching fruit, and sent us a sample of apples, quite the whitest we ever saw, bleached in his Dryer. Hereafter the Dryers will be sent out with the necessary change in the furnace to adapt it for bleaching, and directions for the operation will be given. Of course bleaching is only practicable with fruit in this or other closed Dryer, and could not be done with fruit in the open air. As the question is sure to be asked if the fruit is rendered any the less wholesome, we anticipate it and say—not in the least.

A Needle is a Wonderful Thing,—were not needles so common and so cheap we should think so. If one must have a needle and had only a bar of steel, what work it would be to get a needle from it! Notwithstanding great improvement has been made, a large share of the work on a needle is done by hand, indeed several hands, for the operations from the wire to the perfect needle are numerous and each workmen performs but one. If a simple needle is a wonder, a paper of needles is a bundle of wonders. Having occasion to use a particular needle for some microscopic work a short time ago we selected it from a package of needles as put up from the London Needle Co. Here were 100 ordinary needles of different sizes in papers, and 20 large kinds for darning and other uses, and the whole sold, sent post-paid, for the ridiculous price of 25c. We came near forgetting our microscopic work in view of the microscopic profit that must fall not only to those selling, but especially to those making the needles. Who would undertake to make 5 needle-eyes for a cent—letting alone making the rest of the needle.—It is all very wonderful—and as for quality—the microscope sustained the favorable report of the user of the needle.

The Semi-Centennial Anniversary at Lima, N. Y., to be held June 6—10, will doubtless interest a good many of our readers who have enjoyed the educational advantages of the Seminary that has flourished there for fifty years past. Probably more than ten thousand young men and women have been taught in the Institution, many of whom have filled important stations of honor and usefulness. All Alumni and Students now living are invited to come together at the above date for a Grand Reunion, and we hope to be able to be present to greet some of those who were classmates nearly forty years ago, though of course but a small number of the four hundred old comrades are now living. For circulars giving particulars, address Rev. G. H. Bridgman, Principal, Lima, Livingston Co., N. Y.

Bee Notes for June.

BY L. C. ROOT.

The system of management for the present month must be determined by the intentions of the bee-keeper. If box honey is desired, the boxes should now be properly arranged upon the hives. If the Extractor is to be used, extra combs should be supplied for this purpose. If increase of swarms is the object, rather than surplus honey, preparations for additional swarms should be made.

In many locations, this is the month when natural swarms will issue most freely. In such sections, swarms may now be made artificially with most profit. There are many who allow swarms to issue naturally, but when unrestricted as to number, this is never desirable. Those who permit it should remember that it belongs to the benighted days of box hives and brimstone pits. It would hardly be possible for us to give the different methods of artificial increase in the limits of these Notes. They are treated upon at length in every practical work on the subject, and no progressive bee-keeper can afford to do without at least one such good work.

"How much increase is desirable?"—This question is often asked. In answer, we would say that probably most inexperienced bee-keepers will reach the greatest success by placing boxes upon the hives, as soon as the bees will occupy them, and allowing one swarm to issue from such, as the season induces them to swarm, but never allow more than one. In this way a reasonable amount of increase may be secured, besides probably some surplus honey if the season be favorable. After the swarm issues, all of the queen cells should be removed from the combs, except one of the largest and most fully matured; or, what would be better, remove all, and introduce a laying queen. If the motto we have often recommended, viz., "Keep each hive supplied with a laying queen at all times," was observed, the gain of honey throughout the country would be doubled. If those bee-keepers who allow their bees to swarm without restraint would study the subject and see what they are losing, they would appreciate the value of this motto. It should be borne in mind, that when two or three swarms are allowed to issue, the old colony is without a queen from 20 to 25 days. At a low estimate, 1,000 bees would have matured each day from the eggs which, under favorable circumstances, a queen would have deposited during this time. The loss arising from the absence of a queen for 20 days would amount to 20,000 bees. A colony should not be left queenless for one day, as one can not afford the loss even of 1,000 bees. If much increase of swarms is desired, have laying queens in readiness, and when a colony is formed, which can best be done artificially, furnish it with a laying queen. Remove the boxes so soon as they are full, and supply their places with empty ones. All boxes and frames used should be supplied with starters, or full sized cards of comb-foundation.

[Mr. Root very properly advises bee-keepers to have one good work on the subject, but is quite too modest to mention the fact that he has written such a work himself. The work is called "Quinby's New Bee-Keeping," and it embodies the teachings of Mr. Quinby, but the work is really by Mr. Root, and it gives in full detail all the operations of the Apiary according to the best modern practice.—Price, post-paid, $1 50.—EDS.]

Salt on Wheat.—"J. P. G.," Columbus, Ky. Salt in moderate quantities will not injure wheat, but it will not benefit it nearly so much as is claimed by some. For instance, it will not so moisten the ground in dry weather, as to avoid the ill effects of a drouth, nor will it destroy injurious insects. Pure salt does not attract moisture; it might possibly destroy insects if a sufficiently large quantity were used, but as so much as 5 bushels per acre are rarely applied, its effect is not appreciable It is supposed that the beneficial action of salt, is to make the straw stiff, and to better fill out the grain. Early in the spring is the season for applying salt to wheat or grass that the best results may be obtained.

How Much Hay for a Horse.—"B. F. H.," Fairfax, Ia. A horse will eat 20 lbs. of hay, and 6 quarts of grain a day, and a large horse will consume one-fourth more than that. Much depends on the vigor of the horse.

The New Water Motor.—"C. H. G.," Salt Lake City. We can give no more definite information about the water motor, nor of the address of the patentee, than we have already given. We believe the inventor is now in Europe, and is not giving any attention to his invention in this country. If any party made one for his own use, no penalty is attached to that, only a royalty could be exacted by the person holding the patent.

Condition Powders or Medicine Food.—When a food for animals, or a medicine for them, is advertised in our columns, it is proof that we know what the articles are. The "Condition Powders" to be given to horses and other animals, Egg food for poultry, contain articles well known as tonics or laxatives, to regulate the bowels; they not only contain useful ingredients, but they do not contain anything which may not be given with safety. Were we to publish the recipes, very few would be at the trouble of getting the various seeds, roots, etc., and mixing to make the powder themselves. The same things ready prepared, and to be bought at a moderate price, will be purchased, and as they are ready for use, will be given, when otherwise they would not.

The English Bee-Keepers.—The season of 1879 in England has been one of general disappointment, and none have suffered worse than the bee-keepers. "And now that this wretched season ('Agricultural Gazette,' London) is coming to a close, those that really care for their bees must unbutton their pockets and buy food for them .. It will take years for the country to recover the loss of hives of bees during the season of 1879, and bees must not be only very scarce, but also very valuable."—The English bee-keepers may have the consolation that the probabilities are entirely against their having another such an unfavorable year.

Abortion in Ewes.—"J. C. D.," Clinton, Conn. A ewe cannot be expected to produce a strong lamb, or a lamb at all, unless provided with nutritious food. "Herd's Grass," (Timothy), and salt hay, is not sufficient to properly nourish a breeding ewe, and enable her to produce a lamb. "Out of nothing, nothing comes." A pint of bran and oats, or less, a day for each ewe, would probably have prevented the loss of the lambs.

The Post-Stamp Nonsense.—Every now and then a letter comes to the effect that the writer has heard that a price has been offered for a million cancelled postage stamps, and asking us to give the address of the person making the offer. Several years ago we heard of a similar offer in England. Parties here seem to have the matter all straight except the name and address of the one who will pay the $5, $50, $100, or whatever the sum, which varies greatly. The whole matter seems to us a piece of idle nonsense. Cancelled stamps are of no other possible use than to grind up to be worked into paper, and the mills can pay but a few cents per pound for this, or any other waste paper. But who makes the offer?

Record for Dairy Cow.—"W. K." The new association for recording yields of Dairy Cows, is now in operation. The Secretary is L. S. Hardin, 309 Greenwich St., New York. The object of the Association, is the improvement of dairy stock, by encouraging the regular noting of the yields of butter and milk, and by furnishing an opportunity for recording these in permanent form, of which certificates may be given. Any cows or bulls from recorded cows, can be entered irrespective of breed or kind. Knowing by these records the value of each of his cows, an owner will be apt to keep only his best animals, and endeavor to improve his stock, and if this recording should become general, it would soon double the value of our dairy animals.

Short Notes about Food.—Two aged clergymen were chatting together, when one of them, referring to his long years of effective labor, said "he thanked God for having given him lungs of brass."—The other replied "he was thankful that his lungs were not made of brass, for they would have been *worn out* long ago."—Unlike other machines, our bodies keep renewing themselves as they wear away. We eat, say a piece of bread and of meat. After being mixed with saliva in the mouth, they go down into the grinding or dissolving mill, the stomach. From millions of little tubes all over its surface, a fluid is poured in called the gastric juice. By a sort of shaking up process this juice mixes with the food, dissolves as much of it as it can, and forms a sort of liquid which passes out of the right side of the stomach into a large tube called the *duodenum* (about 12 inches long). While the food is in the stomach some of it is absorbed through its coatings and goes into the blood, to be distributed through the body as described below. As the dissolved food enters the duodenum, the liver pours in a little bile, a green bitter fluid, and before it leaves this tube another kind of fluid, called the pancreatic juice, is also poured in. Now, the bread and meat (or other food), having been ground (masticated) in the mouth, dissolved (digested) in the stomach, and received its four distinct or different fluid additions—the saliva, the gastric juice, the bile, and the pancreatic juice, is a sort of milky fluid, and it passes into the upper end of the small intestine, a tube about 25 feet long in a full grown person, which coils back and forth across the abdomen down to its base, when it turns back and the whole coil passes under the stomach and down on the right side to its exit. A sort of worm-like (peristaltic) motion keeps pushing the food along. All over the inside surface of the long tube (or intestines) are millions of little open mouths of tubes that suck out some of the fluid food and carry it into the blood in the veins. This blood, carrying the food particles, flows into the left side of the heart, where another force-pump sends it through arteries into the lungs. There it comes in contact with the air breathed in. Other veins carry it back to the right side of the heart, where another force-pump drives it out through the arteries that branch out to every point of the living body—even into the bones, the finger nails, and the hairs. As this food-bearing blood passes along, every part of the body picks out some particles which are just suited to take the place of other used up particles that it has pushed out into the veins—the veins carry the dead matter, some to the lungs to go out in the breath, some to the bladder to go off in the urine, some to the skin surface to escape there. Thus it is that this wonderful machine is daily and hourly rebuilt out of food....Different kinds of food serve different purposes. Carbonaceous food, as starch, sugar, etc., supply materials for making fat, and for uniting with air (its oxygen) that gets into the blood through the lungs to produce heat all through the body, just as carbon (coal) in the stove produces heat there. Other portions of food, as lean meat, gluten of bread, casein or curd of milk (called nitrogenous substances), go to build up and repair the muscles and tendons of the body—they are strength-giving foods. Some phosphates of lime in the food build up and replenish the waste of the bones....Three practical hints: As above described, it takes from different fluids to prepare the food. If one swallows food without thoroughly chewing it to mix it with plenty of saliva in the mouth, an important ingredient is missing.—*Second.* If the food is not well *ground* in the mouth, it is longer and slower in dissolving in the stomach, and that organ is over-worked, and often becomes weak and diseased.—*Third.* If too much food goes down at a meal, the stomach is overloaded and can not properly prepare the food for the next process. Some of it goes into the intestines undigested (undissolved), through the intestine, producing irritation, inflammation, colic, and often diarrhœa, dysentery, or other disorders, often of a serious nature.

Grimshaw on Saws, is a handsome volume of about 160 large octavo pages, on heavy paper, with over 200 engravings, some of full page size, illustrating every possible style of saw, from the simplest to the most elaborate gang saws. Every detail about their manufacture and use, filing, setting, gumming, and repairing, is here given, and the book bears evidence of great thoroughness and completeness. Every patent relating to saws issued since 1790 is here given, as well as various useful tables. The author is Robt. Grimshaw, Ph. D., published by Claxton, Remsen & Haffelfinger, Philadelphia. Sent from this office for $2.50 by mail.

High Farming—What is It?—To be brief, is it the growing of the best crops on the best soil under the best conditions; and finally the crop giving the best profit in return?—No. There are cases when a comparatively poor crop grown on a poor soil with little or no attention, may give the best returns—as is the case in the imperative extensive farming of a new country. High farming is when *much* capital is expended on *little* land for the production of large crops of great value. The production of beef on the plains may be as profitable as the growing of onions, but it is not high farming—it is the character of the culture the soil receives and not the profit, that determines whether farming is high or low. High farming is the profitable farming of old thickly settled countries, and the kind that we are tending to; but as yet it is by no means the best farming in all sections.

The Farmers' Friend and Guide for 1880 is the title of a work of 200 pages about the size of the *American Agriculturist*, and filled with extracts from the agricultural papers in all parts of the country. Mr. Frank Harrison is the compiler, and at 50c. gives a great deal of excellent information for the money.

A Beet Quarterly.—"The Sugar Beet" is the title of a journal of 16 pages about the size of this, which has for its object the familiarizing of farmers with all that relates to Sugar Beets and their culture, and to give news items concerning the beet-sugar industry. The editors are Robert Grimshaw and L. S. Ware, Published every three months by Henry Carey Baird & Co., Philadelphia, at 50 cents a year.

"Two Birds With One Stone."—During a recent visit to a farmer friend, we noticed a leak in the tin pipe, through which he was pumping water for some cows and called the attention of our friend to the supposed waste, only to be informed that these holes were made on purpose to let some water run out into a large dish (which we had not observed) to furnish drink for the fowls. In this way, without any extra effort, both the cows and chickens were at the same time supplied with their necessary water.

(*Basket Items continued on page* 245.)

Keeping One Cow.

MANY MORE FAMILIES SHOULD KEEP ONE—HOW IT PAYS—AN EXAMPLE.

A business man in New York, being troubled to get good milk for young children in his family, took our advice the latter part of the winter and, so to speak, went into the dairy business on his own account. The result will be instructive to tens of thousands of families in cities and villages. He had no pasture grounds, the only convenience being a roomy stall in a carriage barn, with opportunity for the cow to sun herself and take limited exercise in a small area, say 15 by 20 feet, at the side of the barn, and this was seldom used. The stall is kept clean and neat, with fresh straw litter, and the cow has remained in excellent health and vigor. Chewing her cud and manufacturing milk seem to give all the exercise needed. Her feed has been bale hay, cut in a small hay-cutter and mixed wet with corn meal, bran, and shorts, with some uncooked potato parings, cabbage leaves, left over rice, oatmeal, etc., from the kitchen.

A laborer is paid $1 a week to milk and feed and brush her night and morning, and take care of the stable, and he is allowed any excess of milk she gives over 12 quarts a day. He prepares a mess for her noon feed, which is given by one of the boys at school when he comes home to lunch. The cow is a grade, probably ⅜th Jersey and ⅝ common blood. Her milk is rich, yields abundant cream, and as the owner's family say, "Is worth fully double any milk we ever got from the best milk dealers." One neighboring family gladly takes 6 quarts a day at 7 cents a quart, and would willingly pay much more if it were asked, and other families would be happy to get some of it at 10 cents a quart; but 6 quarts are kept for home use, and it is valued far above 7 cents a quart, and worth more than that amount in the saving of butter in cooking, making cake, puddings, etc. So it is a very low estimate to call the whole milk worth 7 cents a quart. No one could deprive our business friend or his family of their good, home produced milk, if it cost 10 or 12 cents a quart. An accurate account is kept of the feed; the man in charge orders at the feed store anything he desires for the cow, and it is all down on a "pass-book." Here are the figures for 100 days past:

The Cow's Debit and Credit for 100 Days.

Dr.

850 lbs. bale Hay, at $22 per ton	$ 9 35
1,000 lbs Corn Meal, at $1.35 per 100 lbs	13 50
400 lbs. Bran, at $1.30 per 100 lbs	5 20
200 lbs. Fine Feed, "Shorts," at $1.55 per 100 lbs.	3 10
20 bundles of bedding Straw, at 10c.	2 00
Paid man for care and milking, $1 per week	14 30
Total expenses for 100 days	$47 45

Cr

1,200 Quarts of best milk (12 quarts per day), at 7c.	$84 00
Money profit in 100 days	$36 55

Or, to put it in another way, the 600 quarts sold actually brought in $42 cash, and the entire 600 quarts used at home cost $5.45. The cow cost, say $65. The entire care, which was not paid in the surplus of milk above 12 quarts per day, is charged in the expenses above. The manure produced, if sold, would more than meet interest on cost of cow, and any depreciation in value by increasing age. Allow the above average to be kept up only 200 days in a year, and at the end of that time suppose the cow is sold for half price ($32.50), and a fresh one substituted, there would still be a gain of $40.60 for 200 days, or for a year a profit of $74.10.

With good feed the $65 cow will keep up a full supply of milk at least 26 weeks, and then be worth $40 for continued milking and breeding. Sell her then and buy another fresh cow for $65—a loss of $50 a year. The above liberal allowance of $47.45 for feed and care 100 days, amounts to $173.19 a year. Adding the loss of $50 for purchasing two fresh cows, makes the total annual expense $223.19. This would make the supply of milk, 12 quarts a day (4,380 quarts), cost about 5 cents per quart, or not quite 51 cents for 10 quarts. This is not an exaggerated estimate for a $65.00 cow, renewed every 26 weeks. The feed and care may be very much less than the above $47.45 per 100 days, by saving all waste foods suitable for a cow, and by securing pasturage 7 or 8 months, and especially when a cow can be cared for by members of the family, thus saving $52.00 a year. Taking the country as a whole, probably $50 will ordinarily buy a cow that will, on fair feed, average 10 to 12 quarts per day for the first six months after calving.

Let Village Residents Keep Cows.

Every family on a farm of course keeps one or more cows, but we claim that the dwellers in villages, and very many in cities can, and should, each keep a cow. *Good* milk is the best of all food for young children, and it goes a great ways in saving butter bills, and in the preparation of palatable nourishing food of many varieties. The above *actual results* show the economy of keeping one's own cow. Two to five families, according to size and numbers, can readily unite in having one cow kept, dividing the milk and expenses, and thus always have good, pure, rich milk at very moderate cost. The suitable refuse from the kitchens of three or four families would go a good way towards reducing the cost of purchased food. In rural villages summer pasturage can be obtained near at hand, which, with a daily feed of good meal will furnish a large supply of rich milk at a low cost. A boy can be secured at a small price to drive the cow to the pasture in the morning, and return her at night to the stable. A stable or stall can always be obtained at a trifling rent, and be kept clean. There are always plenty of gardeners or farmers who will gladly take the manure away so frequently as to prevent it being a nuisance, or disagreeable.

We have no doubt that all residents of Villages, Manufacturing Towns, etc., can, by arrangements like the above, secure an abundant supply of pure, rich, fresh, healthful **milk at less than three cents per quart,** *and at the same time add greatly to their home comforts, and save the health if not the lives of their little ones.*

The One Cow Prize Essay.

Our recent offer of Prizes for Essays had in mind helping families, especially villagers, in the way of keeping their own cows. The proposals, as it happened, did not quite state what we really intended, and the Judges, in awarding the prizes, very properly decided in accordance with the terms of the offer. The first prize essay is given on page 220. One or more of the others will probably be given as we find space for them. Indeed, it will perhaps be best to incorporate several of the Essays in a small Manual, for the instruction of those who can and ought to keep one cow. The Essay (page 220) will be found usefully suggestive on this point, not only to village residents, but to many farmers also.

A Lawn Sweeper.

In the Lawn Mowers of the English style there is a provision for taking up the grass as it is cut. American Mowers rarely have this handy attachment, for the reason that in our climate, when the grass is cut frequently, the short clippings shrivel up in a few hours, and are soon practically disposed of. In the moist climate of England the removal of the clippings is necessary, while with us they may usually be left without much disfiguring the lawn. Still, where the grass is thick, the clippings will often show and, especially if the grass is a little long, neatness requires it to be raked up. Indeed, many who are particular about the condition of their lawn, have come to the conclusion that it is on the whole better to remove the clippings, thinking that the advantage claimed by allowing them to remain as mulch, does not offset the slovenly appearance caused by the dry grass, and say that when the grass is properly thick, it affords sufficient shade for its own roots. In order to allow those who wish to do so, to take up the grass, the makers of the Philadelphia Lawn Mower have produced a Lawn Sweeper. This consists essentially of a rapidly revolving broom with a receptacle for holding the grass. The hand sweeper, as it appears when ready for use, is shown in figure 1, and figure 2 shows the various parts as they are separated ready for packing. The adjustments for bringing the brush to the proper hight above the ground are simple and easily made, and the collected grass

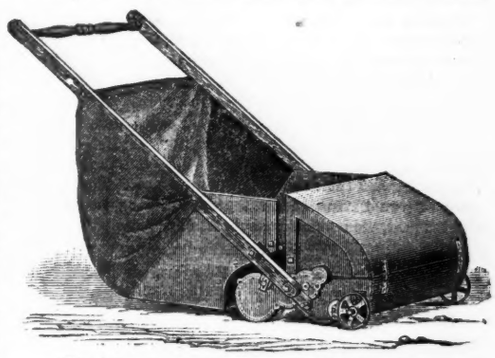


Fig. 1.—THE LAWN SWEEPER, READY FOR USE.

is readily discharged. While the broom, made of split cane or rattan, is very durable, it is so arranged that repairs may be readily made; indeed all the parts are strong and serviceable, and the whole has the substantial air desirable in a machine for use rather than for show. Not only is the Sweeper useful for gathering the grass clippings, but by taking up rubbish of every kind, it will greatly aid in the neat keeping of the lawn. Any one who has raked over the grass in early spring is aware of the great amount of trash that accumulates; this can be taken off by the Sweeper with more ease and much more thoroughly than can be done by the rake. It is the practice with many to apply to the grass in fall a top-dressing of fine manure or compost; the remains of this dressing, after all the soluble parts have been washed out of it, can be most readily removed by the Sweeper, while for taking up fallen leaves in autumn it will do most efficient service. The Hand-mower, the one shown in the engraving, has a width of 24 inches. A horse machine is made with a sweeping breadth of 40 inches, and is so arranged that its contents may be dumped without stopping. In the introduction of the Lawn Sweeper as supplementary to their Lawn Mower, Messrs. Graham, Emlen & Passmore, have contributed greatly to the ease with which a lawn may be kept in the best possible condition. When a machine was received for trial we examined it sufficiently to see the working of its parts, and left it in the hands of the man who does the work

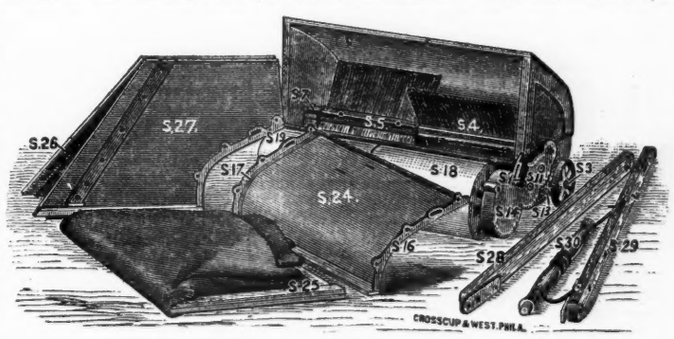


Fig. 2.—THE LAWN SWEEPER, SHOWING THE PARTS.

of caring for the lawn, without any special comment. In a day or two after the verdict was volunteered: "I want to say that that Lawn Sweeper is a very practical and useful machine."—Certainly the makers could have no more favorable comment than this from a practical man that their machine is both "practical and useful."

Fencing and Fences.

It is entirely impracticable to answer the multitude of individual inquiries for specifications, cost of a particular kind and amount of fence, etc., etc. We do not deal in or supply any kind of fencing or materials. Nor can we report upon the various models and descriptions, often not very clear to be understood, that are submitted for an opinion. All received are examined as we have time, and answered if considered important. At least nine-tenths of all the plans, models, etc., of fence posts received, are too complicated and too expensive for *general use* in farm fencing. Posts that will cost 50 cents and upward, each, will not answer, nor will those requiring much digging and "planting." As the cost of iron and steel suddenly jumped up 100 per cent, we nearly dropped the hunt after *metallic* posts for a time, though they are very desirable on account of their permanence, their non-destructibility by fire on the prairies and elsewhere, and their easy setting and their firmness when well set. The price of iron having declined greatly during two months past, we resume the subject of

Fence Posts.

Supporting Iron Posts.—A Suggestion that may Materially Aid in Solving the Metallic Post Question.

In the forms and plans for iron Fence posts, a great deal of ingenuity and expense is devoted to supporting the post firmly in the ground. A simple iron rod or bar, five-eighths to three-fourths inch in diameter, would suffice for most fence posts, if it would stand firmly in the soil. So would a wooden post 2½ inches in diameter, if of a tough, durable kind; and such posts can easily be driven, if sharpened. If the soil has any degree of compactness at 15 to 30 inches below the surface, the bottom of a very small post or rod will stand firmly enough; the trouble is at the surface. Unless the ground be very hard these small rods or posts will sway, and the various devices of collars, flanges, etc., are designed to prevent this. It occurs to us that a very simple method may be adopted thus: The places of the posts being marked out, take a sharp, narrow spade, flat, or curved like a tile-drain spade or scoop, cut out a surface hole, square or round, or triangular, 4 to 7 inches in diameter, and 5 to 10 inches deep, according to the compactness or looseness of the surface soil. If the soil is very loose, like a light prairie, this hole will be all the better if made by driving down with a sledge hammer or beetle, and withdrawing it, a piece of hard-wood (fig. 29 or fig. 30) with a somewhat blunt point, and large enough to make the hole of the size desired.

Fig. 29.

Fig. 30.

This will pack the earth firmly on all sides. Then in the center of these openings drive down the iron rod posts, or the small wooden ones, as deeply as may be needed, and complete the fence, with the spaces around the posts at the ground surface left open, as in figures 31.—*A* and *B* show round and

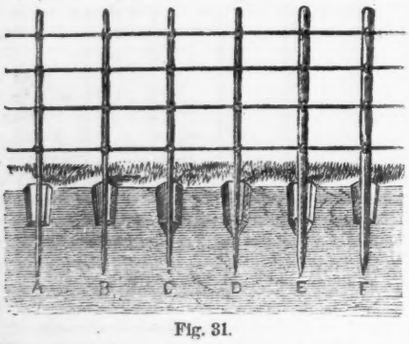


Fig. 31.

square openings made with a spade. *C* and *D* show the openings made by driving the blocks shown in figs. 29, 30; *E* and *F* show similar openings for small wooden posts.—Finally, fill these openings with a grouting, or mortar, made of hydraulic cement and coarse sand, or sand and gravel, or even a sandy loam. It will speedily harden firmly into the soil and strongly support the post. A barrel of the hydraulic lime will suffice for a very large number of posts, and cost about one cent each—depending upon the amount required by the nature of soil, size of post, strength of fence desired, and the kind of gravel or sand or cobble stones available for mixing with the cement. With gravel or cobble stones a pint of cement may answer in a compact soil requiring only a small collar. If the average be a quart, the cost would be from 1 to 2 cents per post, allowing the cement to cost $1.25 to $2.50 per barrel, according to the locality and freight expense. The present N. Y. wholesale price of common Rosendale Cement is $1.10 per barrel. The grouting can be mixed in a half-barrel or box off a wheelbarrow or wagon, and be rapidly shoveled in. It hardens in a brief time after mixing with water. Such collars will prevent rusting of iron or decay of wood at the ground surface where this is most likely to occur.—Probably a man could make the holes, drive the rods or posts, and put in the grouting of at least 100 posts in a single day's work.

If it be objected that posts thus set will heave by frost, we think this no more likely than when set in the soil unprotected. The cement will rise and sink with the rest of the soil. For iron rods, *perhaps*—and we only throw it out suggestively—the holes might be dug, wooden pins, the merest trifle larger than the rods, be set in, the concrete poured around, and the pins be drawn out just when the grouting sets, but is not hard enough to prevent their withdrawal. A smooth hole will thus be left to drive the rod through. If the cement stands half an inch above the surface to shed off water, and the soil be dry below, so that water will not collect and freeze the rod to it, the cement collar will rise and settle during freezing and thawing, without moving the rod.

Perhaps the above original suggestions may go a good way toward settling the metal fence post question.* The cement can be used with any form of posts already devised. Round rods five-eighths inch in diameter weigh about one pound to the foot, and those three-fourths inch not quite 1½ lbs. per foot. At 3 cents per pound, a 6½ feet, ¾ inch, round bar, weighing 9½ lbs. will cost 28½ cents; cement say 1½ cents; total, 30 cents. For a five-eighths inch bar, 6½ feet long, 6¾ lbs., 21 to 22 cents, cement included. Any form of bar may be used. A flat bar 6½ feet long, 1 inch wide, half-inch thick, weighs nearly 10 lbs., which, at 3 cents per pound, and 1 cent for cement, would cost 30 to 31 cents per post. If three-eighths inch thick, the weight will be about 7½ lbs., costing 24 cents, including 1½ cents for cement.

Very small Cedar or Locust posts, or of other tough durable wood, can usually be obtained cheaply—as the freight will be light—in many places at 6 or 8 cents each, and one or two cents worth of cement, used as above, will support them firmly. When iron falls to about 2 cents a pound, as it is likely to, we can get effective flat or round bar posts, cement included, for 15 to 20 cents each.

Figs. **32, 33.**—R. H. Mong, of Delaware Co., Ind., sends us sketches of several forms of posts, from which we select the following two: Figure 32 shows a bar of round iron, ¾ or ¾ inch in diameter. The lower end is bent at right angles to form an imperfect ring, say 4 inches in diameter, which will lie flat upon the bottom of a hole, dug, or better bored with a post auger. A flat stone is laid upon this ring or base, and the earth packed in firmly, using small stones or gravel if accessible. A small bar, however strongly anchored at the bottom, will not be held firmly by the ordinary surface soil. Unless small stones are at hand to pack around it, hydraulic cement, described elsewhere, or some other support, will be necessary. The running wires can be attached to the upright bar by notches, filed or struck in with a cold chisel at the points where the wires pass, and fastening them with a binding wire twisted on. With the cement collar, probably ¾-inch rods will answer for ordinary fence, or better, ¾-inch. The size of the ring, and the depth of the base in the ground, will depend entirely upon the firmness of

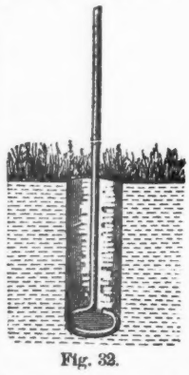


Fig. 32.

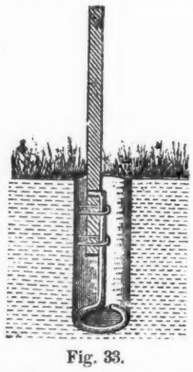
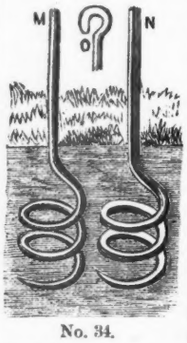


Fig. 33.

the soil. In compact soil, with cement collar, one foot deep may answer. Allowing two feet for the ground portion, including the ring, and 4½ feet above ground, 6½ feet of bar will be needed. This will weigh, for ¾-inch diameter, about 9½ lbs., and for ¾-inch, about 6¾ lbs. At 3 cents per lb., the ¾-inch rod, 6½ feet long, would cost about 28½ cents, and the ¾-inch for 20¼ cents.... Figure 33 has the same underground base, but its upper end is bent at right angles to pass through an auger hole in a wooden piece 2 inches square or larger. It is fastened to the ground bar with two staples as shown. This is cheaper than the all iron post, but the wooden bar will of course decay in time, unless specially prepared, and it will not be fire-proof. (The artist erred in showing the wood part in the ground; it is to be kept entirely above the surface).

No. **34.**—Herr Peter Werner, of Worthington, Iowa, sends a sketch, and suggests that iron rods, sharpened at the lower end, may be bent readily into the form of a screw, as shown in *M*, or any shape desired, and worked into the soil by turning them, which may be done with a blacksmith's tongs, or large wrench. The upper end may be bent like *O* in the engraving, and an iron rod put in to turn them into the soil. The coils standing transversely will strongly support the portion above ground. Such posts may be of round iron rods, *M*, or flattened bars, *N*, and these may be of any desired size, strength, and weight.



No. 34.

Nos. **35, 36.**—C. D. Roberts of Sherman, Wyoming Territory, sends us a description of a fence considerably used with and without wire for Cattle Ranches, especially when small trees or poles are

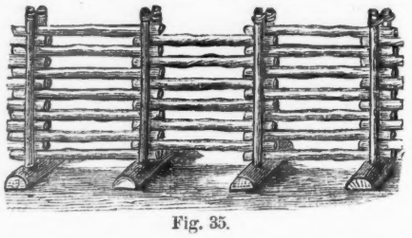


Fig. 35.

plentiful, but heavier timber for posts and boards scarce. Mr. R. says, "it turns the wildest cattle, and holds the smallest lamb." It is also portable, and can be taken down and moved if desired. The base, fig. 35, is the split half of a larger pole or small log, of any desired length, in which two auger holes are bored near the middle, a little distance apart. Into these, two upright poles say 2 inches in diameter are set. The small poles for the running

*N. B.—The above described methods seem to be so valuable, that we have applied for Letters Patent, to prevent any other parties from taking out patents, as we understand they would have power to do, if not forestalled—and thus prevent their use by our readers.

fence are laid in between, the spaces left being of the thickness of the poles. The tops of the uprights are bound together with wire or pieces of old iron hoops. Flat stones or billets of wood placed under the base pieces will keep them from the ground and save decay. The distance apart of the base pieces will depend upon the length and strength of the poles available. No. 36 is the ar-

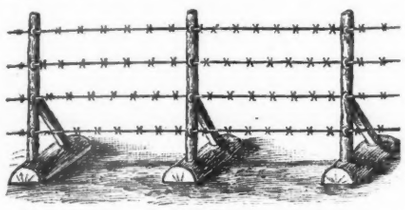


Fig. 36.

rangement for *wire*, plain or barbed, having only one upright of durable *wood*, and somewhat stronger than when two are used. A brace piece is firmly fastened with heavy nails upon one side. Any kind of plain or barbed wire can be used on these stakes.

Experience with Barbed Wire.

FROM A MISSOURI CORRESPONDENT.

N. B. Shearer, Clinton Co., Mo., writes to the *American Agriculturist* that he is not interested in the manufacture or sale of barbed wire, and says: ".... Four years ago I put up one wire above four boards for a neighbor, and one wire above five boards the following year. He told me a short time ago that no stock ever troubled those fences. Two years ago I put up forty rods for myself, joining my neighbor's pasture, using three slats at the bottom for hogs, and three wires above. He has a span of young mules that would jump an ordinary fence, and they tried those wires long enough for one of them to get an ear torn about an inch. Since then those mules are careful not to touch that fence. I was so well pleased with its needing no attention, that this spring I have put up 115 rods, using two planks at the bottom, and three wires above; I set my posts 16 feet apart, and drove a short stake at the center of the planks, leaving it high enough to reach the lower wire. I put the lower plank four inches above the ground, left a four inch crack between the planks, and put the lower wire five inches above the planks, with one foot openings between the wires. It makes a good fence. There is a good deal of wire used about here for the upper part of fences, but it is pretty well agreed that it needs planks or slats at the bottom. A good deal is built with three planks and two wires. Once in a while I hear of a steer or horse getting hurt, not because they don't see the wire, but because they are used to breaking over other fences, and they try the wire once, but never the second time. I don't think iron posts will be used here for some time, as White or Burr Oak posts can be had for 10 to 12 cts. each.

"My method of straining the wire is to fasten one end, and unroll the strand the whole length of the fence; then, with a rail or pole, 10 or 12 feet long, I wind the wire around the pole, about two feet from one end, and with that end catch on to the post, and taking the other end walk around. By the time I get the wire fast to the posts, the unevenness of the ground makes it taut. Barbed wire is universally liked here, nearly every one making a new fence puts on some wire. Some would rather have three boards with two wires; others prefer two planks with three wires. It is pretty well agreed that it wants some wire to turn cattle."

DR. HORNE ON BARBED FENCES.

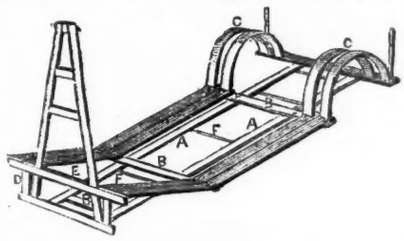
Dr. Wm. Horne, Veterinary Surgeon, Janesville, Wis., in a letter to the "Country Gentleman" writes: "Unquestionably the barbed wire fence has important qualities to recommend it. It is cheap in first cost, and quite serviceable. It is easily put up and easily kept good. It looks well and does not harbor vermin. This is all well enough, but there are more serious objections. It is unquestionably the most dangerous and cruel fence ever invented. As now put up, it is a murderous, treacherous snare, and inflicts much suffering upon our domestic animals. I am quite in a position to know whereof I speak. I have seen numbers of young colts literally torn to pieces. One fine filly I saw with her throat cut, by being tangled in the barbed wire and struggling to get free. I have seen several with the joints literally sundered by this wire. I have seen a fine mare with her fore feet nearly sawed off. Many of these, and others, were my own patients. Some of them recovered fully, having only a few scars. Many of them were ruined for life. Sheep seem to be the next greatest sufferers from this fence. Many of them have been fearfully mangled and torn. Cows and swine do better. Cattle are much slower animals, and much tougher skinned; still I have seen some cattle badly torn and mangled. Pigs are very cunning, and not much liable to be seriously hurt. Lambs and calves suffer a good deal.

"In its present general construction, the barb wire fence comes under the law for the prevention of cruelty to animals, and it would be a simple matter to make an action lie, if properly managed.—The question is, whether we shall do away with this economical, useful fence, which is of so much value to the treeless farmer out of reach of the lumber market, or so far away as to preclude the possibility of wood fencing. I think not. Surely we can devise some modification of the evils following the use of this fence. I hope our intelligent stock-men will try and hit on some method which will do away with the objections to this useful fence."

Our first strong prejudice against Barbed-wire fences was gathered at Lincoln, Neb., and confirmed afterwards at Beloit, Wis., not far from Janesville. It was there that we first met with the Brinkerhoff steel strap, which, with the modified barbs we suggested several months ago, we still believe to be the most desirable fence. This is shown in No. 20 of our January number. But there seems to be some hitch in bringing it into the general market.

A Home-made Hay Rack.

It is now the time when everything should be put in order for the haying season, which, with all its hurry, will soon be upon us. Among other things, a good substantial Hay Rack, or "Hay-Rigging," as it is often called, if not already at hand, should be supplied; and this the farmer can do himself. The engraving is of one that the writer has used for years, and finds it in all respects satisfactory. In



CHEAP AND HANDY HAY RACK.

its construction two bed-pieces, *A*, *A*, are required, these run the whole length of the rack, about 16 feet, and rest upon the bolsters of the wagon. Oak scantling or plank may be used; but a lighter wood is better if made sufficiently large. In the one referred to, a white-wood log, 9 inches in diameter, was used; this was split in halves, the curved or sap-wood side being placed outward, with notches cut in it, to make a close fit with the stakes, and thus keep the rack from sliding. Three cross-pieces, *B*, *B*, of 3 by 3 scantling, and 8 feet long, are spiked upon the bed-pieces in notches made to receive them, and in the places shown in the engraving. Between the two rear cross-pieces, two heavy "hoops," *C*, *C*, pass over on a curve to keep the hay from falling upon the wheel below. The hoops are made from young hickory trees, 3 or 4 inches through, split in the middle, and bent to the proper shape. The ends are securely fastened in D-shaped holes in the cross-pieces. Inch boards about a foot in width are placed upon the middle cross-pieces, and form the "wings" of the rack. These boards are level. In the front, short standards rise from the ends of the bed-pieces, *A*, *A*, which are joined by the short cross-piece, *B*. The short standards, *D*, carry the cross-piece, *E*, which is a foot or so above the bed-piece—the distance to be determined by the size of the front wheels. Upon this raised cross-piece, and running back in a slanting direction, are two boards, like those in the middle of the rack—but being raised in front they keep the hay from the wheels below them. To complete the rack, a "ladder" is put at the front; this consists of two stout pieces bolted to the inner sides of the ends of the bed-pieces, and approaching each other as they pass upward, are united by an occasional cross-bar. This ladder serves as a guide in loading, gives a place to fasten the reins, and is a means of getting off or on the load. Two pins 20 inches long are set upright in the rear corners of the rack, to keep the first forkfuls from sliding off. With a number of small bars, *F*, *F*, between the bed-pieces to hold the floor boards, the rack is ready to be put upon the wagon.

How Does the Water Enter a Tile-Drain?

It is generally supposed that the pores in drain-tiles admit the water; but they do not; if they did they would as capillary tubes transmit it very slowly. The ends of the tiles are not perfectly smooth, and when they are placed in as close contact as possible, do not make a water-tight joint. Let us suppose the conditions to be reversed, and we undertake to convey water to a distance in a pipe made of tiles laid as closely together as possible. Any one at all familiar with such matters will at once say that the water will leak out at the joints in passing through such a pipe for but a short distance. The manner in which the water in such a case would go *out*, allows us to readily understand how it really goes *in*—it passes through the joints, and will enter as readily as it would leak out. Water always enters a tile or other drain from the bottom. The surface of the water, as it stands in the soil, is called the "water-table," as seen in the engraving. When during a rain water falls upon the surface, it at once soaks into the soil, passing by gravitation directly downward, until it reaches the standing water representing the water-table. The water in the soil then rises until the water-table cuts the line of the tiles, *leaking in* at the joints, when it begins to run off through the drain. If the water-table rises until it reaches the tops of the tiles, the drain will then run full, and the water will continue to run off by the drain until the water-table falls again to its bottom.

SECTION OF DRAIN.

As to the amount of water which will enter at each joint, Gisborne, on the authority of Parkes, of high reputation as a draining engineer, says: "If an acre of land be intersected with parallel drains 12 yards apart, and if on that acre should fall the very unusual quantity of 1 inch of rain in 12 hours, in order that every drop of this rain may be discharged by the drains in forty-eight (48) hours from the commencement of the rain—(and in a less period that quantity neither will, nor is it desirable that it should, filter through an agricultural soil)—the interval between two pipes will be called upon to pass two-thirds of a table-spoonful of water per minute, and no more." Porous tiles are not desirable, as they can aid but little, if any, in the flow of water; they are not so durable, readily crumbling to pieces when exposed to frost, which in ordinary seasons reaches them at the outlets, and in extraordinarily cold spells may act upon them in the soil at the depth of two and a half or three feet. Tile-drains are often spoiled by leaving too open joints between the tiles, under the impression that the water can not otherwise get into the drain. In fact, the joints must be laid closely, otherwise the fine soil, or "silt," as it is termed, will wash in and in time so accumulate as to stop up the drain.

A Country House, Costing $1,500.

BY S. B. REED, ARCHITECT.

This design somewhat resembles the one given last month. The main part is raised to two full stories; the floor dimensions are reduced, and the whole is less expensive. It is believed to contain more than an average amount of accommodation for a dwelling of this cost, and to be very conveniently arranged.....**Exterior** (fig. 1).—The breadth of the front is 37 feet, and the extreme depth, 30 feet. The foundation shows 2½ feet above ground. The inclosing is of horizontal boarding for the first story, and shingles above, with a belt course of dentil work between. Of course the whole may be covered with the ordinary narrow clap-boards, or the "Novelty" siding. There are two pleasant Verandas, front and rear. The Bay Window projecting in front of the main part is square-sided, instead of the usual semi-octagonal, and has balcony finish above....**Cellar** (fig. 2).—Hight of ceilings, 6½ feet; extends under the whole building. Four small windows are arranged to furnish light to all parts. The outside entrance is from the rear, and a stairway leads to the kitchen. ....**First Story** (fig. 3).—Hight of ceiling, 10 feet. The Hall is entered from both front and rear verandas, and doors lead to the parlor, sitting-room, and kitchen. The principal flight of stairs lead from this to the second story. The Parlor is square, with a front bay window or alcove, arched across on the inside. A plain window is placed at the center of one side. A mantel, not indicated in the cut, is put opposite the bay window. A door leads to the rear room, which may be used either as a sitting-room or a family bed-room. It has two windows, an open fire-place, and a closet. [This room may be used as a Dining-room, though this would involve much carrying of dishes and food, and that too, across the main hall, unless a door be provided from the rear veranda to the sitting-room, and the veranda enclosed with glass for cold and stormy weather. The plan might be modified by cutting another room, for a library or bed-room, from the front of the kitchen, and let the kitchen occupy a portion of the rear part now provided, and also the rear veranda, and part of the rear of the main hall.]—The Kitchen is really the pleasantest room in the house. In this the family spend very much of their in-door life together, and special efforts are made to render this apartment as cheerful as possible, by giving it a favorable position with good outside views, and where it shall be well sheltered from storms, and shaded from the direct rays of the sun. It is of fair size, with front, rear, and side windows, a large open fire-place, and a 5 by 6 feet pantry. A pump and sink (not shown on the plan) are placed between the fire-place and pantry, under the window. The stairs to the cellar is under the main flight. An outside door opens to the rear veranda.....

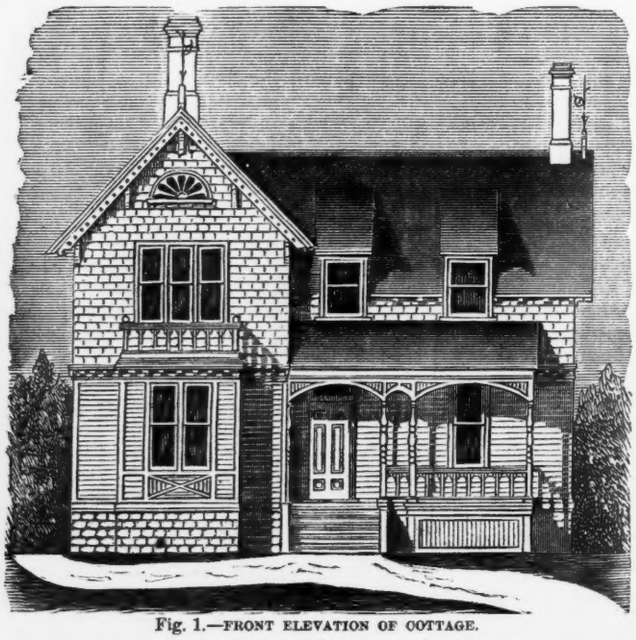


Fig. 1.—FRONT ELEVATION OF COTTAGE.

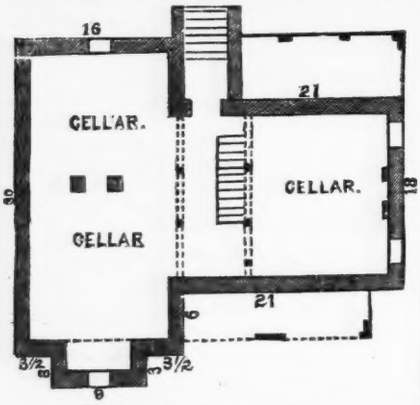


Fig. 2.—PLAN OF THE CELLAR.

Second Story (fig. 4).—Hight of ceiling in the main house, 9 feet, and in the wing 4 feet at the sides, and following the roof to the full hight of 8 feet. This story contains a hall, five rooms, and two closets. If desired, the rear wing room (6 by 14 ft.) may be furnished and used as a bath-room, with water pipes direct from the sink and pump below....**Construction.**—The foundations are of broken stone and mortar, 18 inches thick and 6½ feet high, 2½ feet of which show above ground, all neatly pointed where exposed to sight on the outside. The walls may be of brick where stone are not at hand, at a small additional cost, say $15 to $20. Chimneys are of brick, laid in the usual manner. The kitchen fire-place is arched to the hight of 5 feet. Frame of sawed spruce, of sizes shown in the estimate below, all thoroughly framed and secured with hard-wood pins. The entire sides of the frame-work are sheathed with rough selected boarding of even thickness. The siding is of 6-inch wide clear pine clap-boards to the hight of the belt course. Above this course the sides are shingled [or otherwise, as above stated]. The Roofs and Verandas are shingle covered. The Valleys, Gutters, and Leaders are tinned. All exposed timber on the verandas is dressed and chamfered. Flooring for verandas of narrow white pine, and for the inside of wide spruce. Marble Shelves are put in each of the principal rooms. Plastering: white hard-finish on two coats of brown mortar. Painting: two coats inside and out of any desired shade...**Estimate.**—It being impracticable to follow the constantly changing prices, the items of cost are made at a uniform standard with those given in our more recent estimates.

94 yards excavation, at 25 cents a yard				$ 23 50
50 perches stone foundation, at $2.75 per perch				137 50
4,000 Brick, in chimneys (laid), at $12 per M				48 00
560 yards Plastering, at 25c. per yard				140 00
3,000 feet of Timber, at $15 per 1,000, viz.:				45 00
2 Sills,	4x8 in. 30 ft. long.	2 Ties,	4x6 in. 30 ft. long.	
2 Sills,	4x8 in. 22 ft. long.	1 Tie,	4x6 in. 18 ft. long.	
1 Sill,	4x8 in. 18 ft. long.	2 Ties,	4x6 in. 22 ft. long.	
2 Sills,	4x8 in. 16 ft. long.	4 Ties	4x6 in. 16 ft. long.	
7 Posts,	4x7 in. 20 ft. long.	2 Plates,	4x6 in. 30 ft. long.	
2 Posts,	4x7 in. 15 ft. long.	2 Plates,	4x6 in. 22 ft. long.	
1 Girder,	4x8 in. 18 ft. long.	28 Beams,	3x8 in. 16 ft. long.	
1 Veranda,	3x8 in. 88 ft. long.	18 Beams,	3x8 in. 22 ft. long.	
1 Ridge,	2x6 in. 62 ft. long.			
100 Joists, at 15c., $15.00; 250 Wall Strips, at 12c., $30..				45 00
325 Shingling Lath, at 6c				19 50
55 bunches Shingles, at $1.25				68 75
250 Sheathing, at 25c., $62.50; 430 Sidings, at 12c., $51.60				114 10
Cornice materials, $28; Veranda, finished, $30				58 00
37 Flooring boards for Veranda, at 25c. each				9 25
185 Flooring boards for inside, at 28c. each				51 80
4 Windows, cellar (complete), at $3 each				12 00
17 Windows, plain (complete), at $7 each				119 00
3 Windows, dormer (complete), at $10 each				30 00
17 Doors (complete), at $6 each				102 00
Stairs				35 00
240 feet of Valley, Gutters, and Leaders, at 8c. per ft.				19 20
6 Marble Mantel Shelves				22 00
Closet, finished, $10; Nails, 300 lbs., $12				22 00
Painting, $110.00; Carting, $15.00				125 00
Carpenter's labor (not included above)				150 00
Pump, Sink, and Incidentals				103 40
Total cost				$1,500 00

The Wire Age.—We are told that the world has passed through a *stone*, *brass*, and *iron* age, etc.; and it now seems as if it had arrived at the *wire* age.

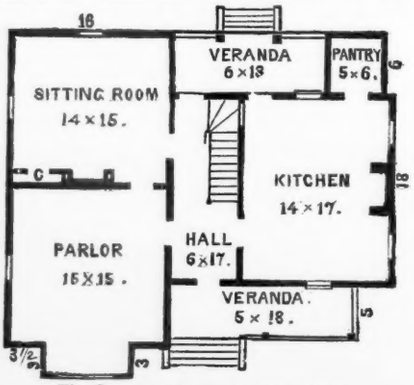


Fig. 3.—PLAN OF THE FIRST STORY.

In coming up the streets of a city, the first and the last thing to be seen, is a wire running—the mind only wonders where! Some one has aptly likened the interlacing wires in a city like New York, to the work of some giant spider, which has covered the streets and houses with a net-work of iron webs. But wires are not for city use alone. There are many times on the farm, when a piece of wire might prove of great service. There are other places than in a pig's nose, where, if a bit of wire was used, much trouble might be saved. Things will break, and there is nothing better for mending than wire. A piece of harness, or a part of the wagon, harrow, cultivator, etc., may come apart at just the wrong time, and nothing will so easily mend matters as a piece of wire, if it is at hand. We keep in our work-shop, a large spool (in fact two, for different sizes) of copper wire, which comes in play so often, that it is looked upon as one of the essential things in the outfit of the shop, and we commend it to every farmer, as one of the greatest of little conveniences. A small coil or spool of such wire, should be kept in the work-coat pocket; it will save a vast deal of going to the house for repairs, and be one way of saving money. One should never start on a journey, whether for several days, or only a few miles, without a coil of wire under the seat, or in some corner or part of the buggy or farm wagon. Thus provided, one has the means of repairing almost every minor damage to harness or vehicle. In the matter of wires, the country should not be out-done by the city. If it be "An age of wire," it should be so everywhere alike....Since the above was in type, an Oriole's or Hang-bird's nest is reported which the birds built near a mechanic's shop, and had securely fastened it to the branch of the tree by means of pieces of wire which were found by the thoughtful birds in the sweepings of the shop.

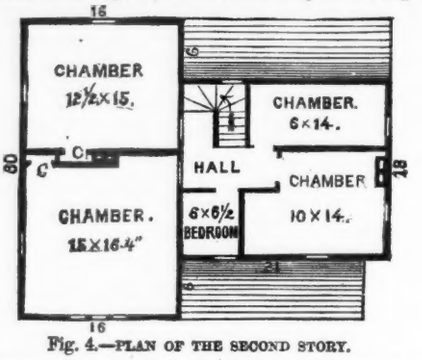


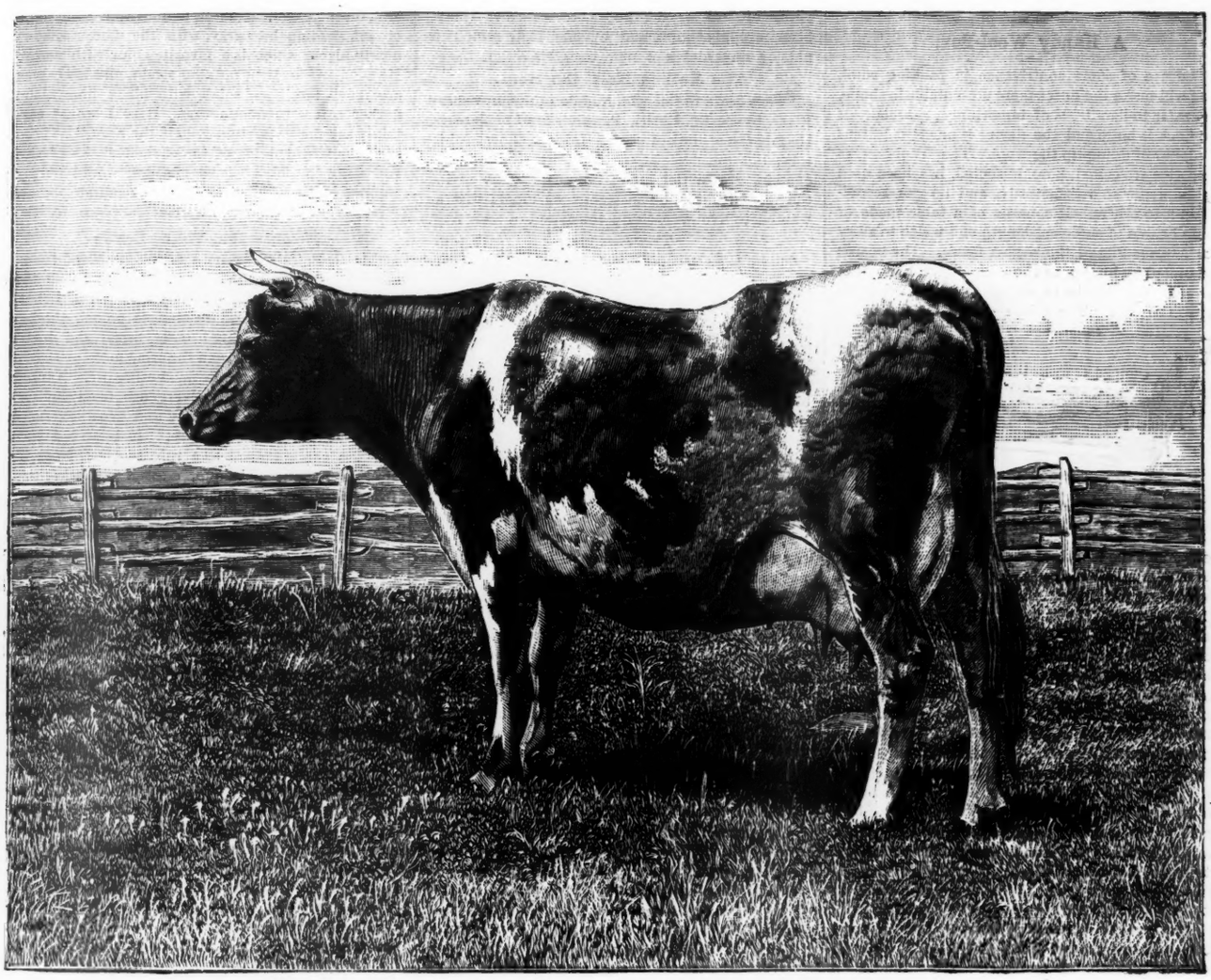
Fig. 4.—PLAN OF THE SECOND STORY.

The Jersey Belle of Scituate.

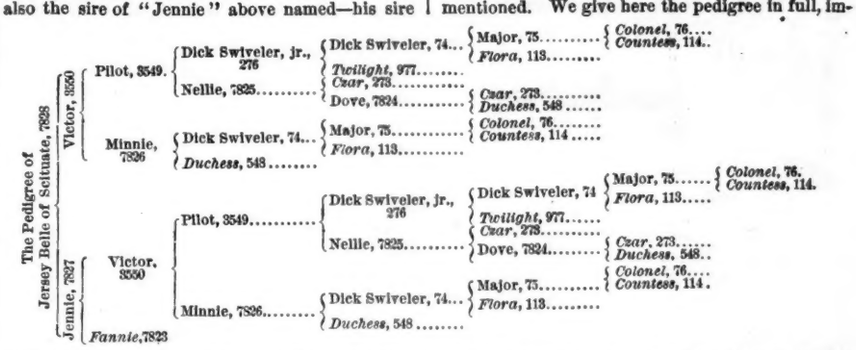
The most famous living butter cow *to-day* is "Jersey Belle of Scituate," the property of Mr. C. O. Ellms, of Scituate, Mass., dropped in 1871, and bred by Mr. E. D. Sohier. She is now nine years old, or will be on the 10th of next month (July). She is a beautiful cow of a rich-yellow-fawn color, shading into a darker tint upon the head, diversified and mapped out with considerable white. She is above medium size, weighing 950 pounds when in her best condition, and really represents exactly such an animal in appearance, as well as characteristics, as may be, and frequently is, produced by the direct cross of the Guernsey and Jersey breeds. One of the best uses, by the way, to which inferior or unregistered animals of either Guernsey or Jersey blood can be put is to mingle their blood. Cross-breeds develop, with great uniformity, the excellencies of both of the parent breeds. In the case of "Jersey Belle of Scituate," it is a question, which probably can never meet with a solution—how much of her rare qualities does she, or does she not, owe to a remote Guernsey cross? Her butter is of as rich a color, and very much the texture and degree of firmness (or rather lack of firmness when compared with average Jersey butter) as the highest colored Guernsey product, and this high color is held throughout the winter. The engraving we give is a faithful copy of an admirable photograph.

The Ellms' cow we have said is *to-day* the most famous butter cow *living*. We mean to intimate that she holds that position only until some rival shall be fully attested to yield more than 22 pounds 13 ounces of butter in a week, or more than 705 pounds in a year. Some cow will surely do this within a year or two, so that unless this wonderful cow excels her own record, she will be forced to accept a second or even a lower place.

Mr. Darling's "Eurotas" yielded within an ounce a day of the highest weekly yield of "Jersey Belle of Scituate" during one tested week last year. This year so far she has not done quite so well, but is making a high average. When the Ellms' cow became famous she was unregistered, but believed to be perfectly pure. Many of her ancestry had been recorded in the American Jersey herd-book. Her dam, "Jennie," 7827, was then unregistered; her granddam, imported "Fannie," 7823, was unregistered. So were her sire, "Victor," 3550—who was also the sire of "Jennie" above named—his sire which was in the sixth generation. We have in the pedigree of this cow several instances of close in-breeding. Stated in the ordinary form, giving the dam's line, it is as follows: "Jersey Belle of Scituate," 7828, by "Victor," 3550; dam, "Jennie," 7827, by "Victor," 3585; g. dam, "*Minnie*," 7823, imported in 1860. "Jennie" and her famous daughter were therefore by the same sire, while "Victor's" sire, "Pilot," and dam, "Minnie," were very closely bred, one being by "Dick Swiveler," and the other by "Dick Swiveler, Jr.;" besides, "Pilot's" dam, "Nellie," was by "Czar," and her dam, "Dove," also by "Czar," and out of imported "Duchess," 548, the dam of "Minnie" before mentioned. We give here the pedigree in full, im-



THE FAMOUS COW "JERSEY BELLE OF SCITUATE", 7828.



"Pilot," 3549, and dam, "Minnie," 7826. "Pilot's" dam also, "Nellie," 7825, and her dam, "Dove," 7824, were neither of them registered. To secure therefore the registration of this one cow, it was necessary to register seven other animals, one of ported animals in *italic*. Breeders of cows in this country are putting in practice the lessons in close breeding thus forced upon them, and we mistake if within the next ten years greater progress will not be made in "butter breeding" than ever. There is, of

course, no evidence that "Jersey Belle of Scituate" has a drop of Guernsey blood in her veins. Yet we find in her, as in many cows upon the Island of Jersey, strong Guernsey characteristics. The fact being perfectly well known that Guernseys have frequently been, and may perhaps even now be, brought from the sister island to Jersey for breeding purposes, and it is fair to assume that this cow has, and is benefited by, some of their golden blood.

A Handy Wool-Box.

The use of some contrivance in packing wool, that will make the fleece more presentable in shape, and safer to handle, is of importance, especially if the flock is large and the device is one that lessens the labor of doing up the wool. The Wool-box, as such aids are called, here presented, has been used by the writer so satisfactorily, and he can recommend it to others. It consists of a table made of three boards of sufficient length and width to allow of the spreading of the largest fleece. The boards are united by hinges, as shown in figure 1, so that the side ones may be turned up to form the box, as seen in figure 2. The width of the middle board

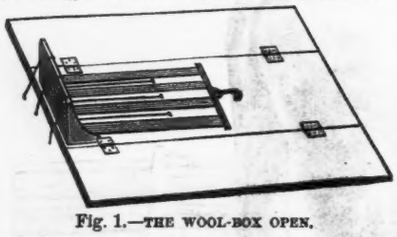


Fig. 1.—THE WOOL-BOX OPEN.

determines the length of the roll. At one end of the middle board is fixed an upright piece, broad at the bottom and thin at the top, the inner side of which is concave, to fit the curved surface of the finished roll. In the upper edge of this front piece three notches are sawed, in which are held as many ends of balls of wool twine. Each twine runs from this attachment along the bottom of the box, to holes in the bottom board, near its middle. The balls are held in a basket below the table. A compound pressure-strap is made of four heavy straps of leather—we used old tugs split in two—and tacked to the bottom board near the base of the front standard, and united at the opposite end by a small rod of iron carrying a small hook, the latter fastening into a hole in the bottom board. The straps are a short distance apart, and the twines are below the open spaces. There is a lever fastened at the bottom of the table and running out in front into an eye, to which the hook of the pressure-strap is fastened when the fleece is to be pressed.

Figure 2 shows the method of using this Wool-box. After the wool has been brought into shape by the hands, and the sides of the table turned up

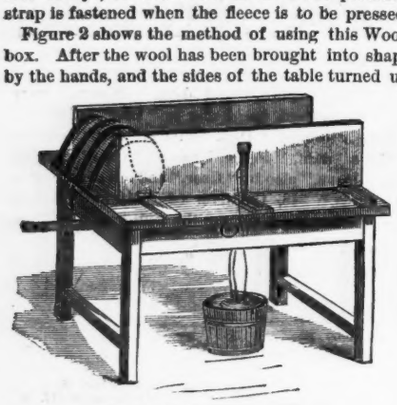


Fig. 2.—THE BOX CLOSED.

perpendicularly and secured by pins, the wool is pressed into a loose roll, when the pressure-strap is brought over the fleece and the hook fastened into the eye of the raised lever. The lever is pushed down with the foot, and the strings brought up and tied between the straps, when the work is done. From experience we know that this Box is a very handy one, and with it a person can do up the fleeces much faster and better than when done simply by hand. With wool as with other products of the farm, the highest price is obtained, other things being equal, when it looks the best, and this device, which any one can make and use, is a labor-saving one that turns out good, closely packed fleeces of pleasing appearance in the market.

Among the Farmers.—No. 53.

BY ONE OF THEM.

My recent wanderings have taken me among the herds of five or six good breeders, and I have been strongly impressed by one fact, which is not by any means a new one, viz., that

The Bull is Half the Herd.

I went down to Oceanic, N. J., on the Shrewsbury River, to see Dr. Ehrick Parmly's herd of Jerseys. He inherits a fine old place. I don't know its history, but presume it was built by some old sea captain, grown rich upon the sea, and so loving the rolling waves, he had seen so much, that he wanted to live ever within the sound of their roar.

The Jerseys.

There have been several good Jersey breeders in this vicinity, and prominent among them was Robt. L. Maitland, who imported some of the best blood that ever came into the country. Charles Carow also imported some animals which proved very good. Dr. Van Buren, and E. Delafield Smith, have each had excellent herds, and brought famous blood into the vicinity. Dr. Parmly's herd was simply a useful one, there were no "fancy" cows in it; no very beautiful ones. A breeder would call them "good plain things." Two years ago, he exercised most excellent judgment, in placing at the head of his herd, "Prince of Scituate." His dam is "Belle of Scituate," and his grand dam "Jersey Belle of Scituate," the most famous Jersey cow in the world. She was famous then, but not so renowned as now.

The bull is a beauty. His color is yellowish fawn running into gray, with considerable white. A beautiful head, full eye, neat incurved horns, but like daggers. His back is level, his body deep, his flank very deep, his neck light, tail fine, loin broad, and rump bones wide apart; great length from hips to rump, and from rump to hocks. He is low set and fine limbed, with a hide as soft and silky to appearance, as that of a well groomed horse. But I did not handle him. He was loose in the yard with the cows, and clearly "monarch of all he surveyed," when strangers were about and took liberties. He had a playful way with him, which did not seem vicious, yet I would not like to offer myself as a plaything for him. I think I would rather have had him play with Mr. John D. Wing, who was present, or with almost anybody else. There is a beautiful

Flock of Yearlings,

daughters of "Prince of Scituate"; last summer's calves coming a year old. These look as much alike as their dams are dissimilar; as to color, their hues vary. They are bright, upheaded, gentle things of excellent form and promise in every respect, generally large teated, with good escutcheons, and though deep-bodied, straight, fair limbed, graceful, and deer-like, and withal of high quality.

The Doctor may well be proud of his bull and of his get, for now he has the foundation laid for a superior breed, and in this case I certainly would say that the bull is sure to prove three-quarters of the herd. Not that the cows are not good. They are, but they lack style, and breeding, and that show of "quality," which, as it is present or wanting, is equally marked in beasts as in mankind.

A few days after, I had an errand which took me to Patterson, Putnam Co., N. Y., where I saw the

Herd of Mr. R. C. Paterson.

This was selected with care, and comparatively high prices were paid. The cows are largely of the Bronx and Bashan family, in fact, this is the only herd I know of where this blood preponderates. They are generally above medium sized, with large bodies, large udders and teats, and are very large milkers for Jerseys. Many are solid colored, and they have a uniform look, which is desirable in any herd. The farm is in one of the best milk-producing sections of the State—the head of the Valley of the Croton River—and Mr. Paterson's ambition has been, of course, not to have his Jerseys esteemed as poor milkers by his neighbors—to whom milk (quantity) is everything. He has so far succeeded that he openly challenges any of the neighboring herds to show as good an average. While as to quality, without making any intentional tests, he finds that his record of butter actually made and weighed, averages about 250 pounds a year for each cow. His bull is "Mopsus," now an old fellow, but of excellent form, and of that solid dark brown, shading into gray, with the darker shades nearly black, which is a favorite color with many. He is of an excellent milking strain, and his calves are much like him, solid, with black points, the darker colors predominating. Here I would certainly say that "the bull is half the herd." There is a very fair blending of the characteristics of sire and dam, so that a casual observer would hardly venture to give the preponderance to either parent.

Not very far from Mr. Paterson's place are the

Norfolk Red Polled Cattle

of Mr. G. F. Taber. There are about 40 of them, and though there is so great a similarity in all the animals of the breed, yet any one can see that, while there are marked differences among the imported cows, some being low set, broad and deep; others are much taller, and differing more or less in all their points when examined critically. Among the young stock no such divergence from the normal standard exists, and this to a great extent I would attribute to their sire. It is an old idea that the young animal as a rule receives from its sire, as regards physique, *external character*, and from the dam those qualities which more directly affect its life, and hence are called *vital characteristics*. If this be true, it is not to be wondered at that in looks—that is in externals, a good bull would mark his offspring so as to occasion a strong similarity. But it is supposed that the nervous organization is derived especially from the sire. Hence docility, gentleness, intelligence, confidence in his friends, are traits, which, existing in the bull, one would expect to see reflected in his get.

Mr. Taber was absent when we arrived, and having permission to examine the Norfolks, we did so, and found the old bull, so quiet and peaceable as to permit himself to be handled by entire strangers, while the younger one—a three-year old—was throughout vicious, yet timorous and nervous to a high degree. Their calves possessed the same traits, though treated identically alike.

I don't know how familiar the readers of the *American Agriculturist* are with this admirable breed, and so I give a brief description. Suppose heavy low set Ayrshires to have the color of Devons, uniformly, that is, mahogany red, or between the red of cherry wood and old mahogany, with big udders, as they (the Ayrshires) usually have, but with big teats, which the Ayrshires usually have not, and with better beef points—that is, deeper in the flank and brisket, fuller in crops and loin, and better let down in the twist,—and withal horniess, and a very fair idea may be had of the Improved Norfolks. They are excellent milkers, have large calves, which are easily fattened, and they have proved, with Mr. Taber, very hardy and healthy. He sells his milk, so that I do not know what the herd would do put to the butter tests. If they resemble the Devons in this, as they do in so many other points, they will be found to excel. It was a fine herd.

A few days later, and last in order of time, I had the pleasure of visiting for a short time the

Jersey Herd of Mr. Horatio Parke Kretchmar.

Mr. Kretchmar is a nephew of that excellent breeder, the late Horatio S. Parke, whose sudden death a year ago cast a deep gloom upon a large circle of friends. He has much of his uncle's love for cattle, and enthusiasm in breeding them, and as the honored name, the tastes, and the fine herd are now his, we may look with confidence to its continuance as one of the best herds in the country.

Early in the Centennial year I went out to the Channel Islands to buy cattle, and had a commission from Mr. Parke to buy the best bull I could—answering certain conditions, which indeed were so accurately stated, that he may fairly be said to have selected the bull and not I. We were, however, so

well in accord in our views, and so thoroughly understood one another that knowing so exactly what he wanted, I was under no temptation to exercise the right of private judgment. Happily I found an animal—a yearling—so near the standard that I could only hope that he would not grow away from it before Mr. Parke had the opportunity to confirm my judgment, which in time he did. It was a pleasure the other day to see the mature bull, the sire of as beautiful and uniform a lot of young things as one ever sees in a herd, more than fulfilling in his full age the promise of his youth.

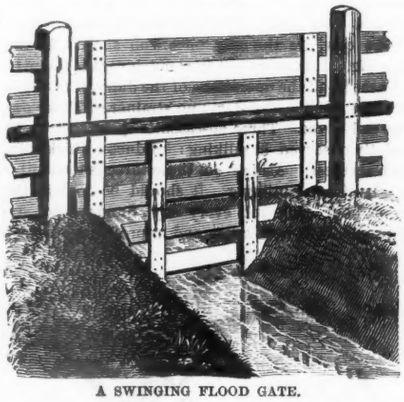
Mr. Kretchmar has one famous cow in his herd,

"Annie Page,"

She is by a son of "Alphea" (the last calf of his famous dam,) who stood for several years at the head of Mr. Parke's herd She was a beautiful heifer, and at eleven months old was found with a fully developed udder distended with milk—and from that time, although she did not calve until ten months after, was regularly milked with the rest of the herd. She developed to be a cow of fully medium size—a deep milker, and extraordinary butter maker, and although tested by Mr. Parke, no memorandums of recent tests can now be found. She will probably be tested again this year. Her daughter, "Annie Gold-dust," by "Jersey Gold-dust," dropped a beautiful heifer calf by the same sire, the day that I made my visit—double "Gold-dust" and "Alphea"—pretty good blood we should say!

Another Flood Gate.

Hard rains will come, and small streams and open ditches that are almost dry one day, may be rushing torrents the next. This makes it a matter of importance to provide a suitable and safe flood gate, at all those places where the farm fences cross such streams or ditches—gates that are easy of construction, permanent, and above all, self-adjusting. Several flood gates have been presented to our readers from time to time, but none like the one shown in the accompanying engraving. It consists of a stout piece of timber—a straight pole will answer—which fits into *round* holes in the fence-posts on each side of the ditch. To this bar, which turns readily in the posts that hold it, the gate, or the length of fence, is securely fastened with heavy spikes, or better still, with bolts. On the lower portion of the gate, an addition of short boards, cut to fit the ditch, may be made as shown in the engraving. The whole gate thus constructed, turns readily upon the horizontal bar, the bottom



A SWINGING FLOOD GATE.

swinging out with the water and allowing it to pass, but returning to its former position, so soon as the water subsides. In making this gate, it should be borne in mind that the part below the turning bar, should be a considerable heavier than that above, so that small stock will not try to push their way through; that is, it is to swing only by the application of a strong pressure at the lowest part, as is the case with a rising, rushing stream.

Judging by the Outside.—The surface of an animal can be taken as an index of its health, and feeding powers, with considerable accuracy. An animal that has a long and soft coat of hair, with the skin soft and elastic, though with noticeable firmness when grasped by the finger, is generally one that is healthy, and has a good constitution, and sufficient capacity as a feeder. On the other hand, the harsh, coarse coat, and hard unyielding skin, are found upon slow feeders, and inferior animals. A good judge of stock can pretty well satisfy himself of the quality and value of an animal, by the looks and feeling of the surface.

A Home-made Field Roller.

There are few more useful farm implements than the roller—and there are few, if any, the use of which is more generally neglected. It is one of those implements that may be had with very little

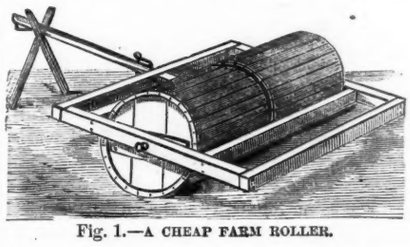


Fig. 1.—A CHEAP FARM ROLLER.

outlay, as it can be made by any farmer who can use ordinary tools. Every field of winter wheat ought to be rolled in the spring so that the plants that the frosts have heaved from the ground may be pressed back into the soil again, and a smooth surface given to the field for the reaper that, in a few months, is to follow. There is no meadow, especially if it is to be mowed with a close cutting machine, but that will be benefited by the passage of a roller over its surface. But besides its value upon the winter crops and meadows, the roller has a more important use upon the newly plowed field, in the breaking down of such clods and lumps that the harrow often fails to touch. Upon a light soil, where there are no clods, the roller is of great utility in compressing the fine particles of earth, thus making it sufficiently compact for the crop to thrive. The use of the roller after sowing seeds of all kinds may often make the difference between the success of a crop and its failure. By bringing the earth in close contact, every good seed will germinate, while without the pressure given by the roller, a large share of the seeds may fail for want of sufficient moisture for germination; or if they do start the germ dries and is killed. Gardeners are well aware of this fact, and in their operations use rollers of a size suited to their work, or beat down the earth with the back of a spade.

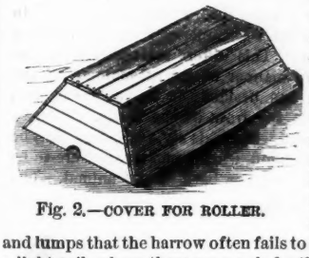


Fig. 2.—COVER FOR ROLLER.

That roller which will most effectually break lumps and do its other work at the least expense, is of course the best; but of the many kinds now in use it is difficult to decide which is the best for all cases. The cheapest, so far as first outlay is concerned, is one made from a log—and the oldest.

Those in which cement is used for the roller, when well made, are lasting and satisfactory, and not expensive. The one which the writer has used for a number of years, was made upon the farm, and entirely by the farmer, except the small amount of iron work which was furnished by the nearest blacksmith at a moderate cost. It is a double roller, of the style shown in figure 1, that is, consisting of two rollers equal in all respects, joined end to end. A roller thus divided is much easier to turn upon the land, as one half turns forward and the other backward in the movement. The "barrel" portion, as the revolving part is called, is about 4 feet long, 3 feet in diameter and consists of two end pieces or "heads" of inch oak, to which the "staves" of narrow 1¼-inch oak stuff are spiked with heavy nails. The axle, which passes through the center of the rollers, is a round bar of 1¼-inch iron and is secured to the frame by close fitting iron boxes. The frame is made of 3 by 4 inch oak scantling firmly mortised together. In front and back, a board is fitted into the frame at the underside of the frame pieces, thus making a long shallow trough, into which stones and other things may be put as picked up while the roller is at work. A cover for the roller, made of inch stuff in the manner shown in figure 2, is an important item if there is no shed under which the roller can be kept when not in use. This cover fits over the body of the roller and rests upon the frame, and is so adjusted that it can remain in position when the roller is in use, but it is best to remove it unless the extra weight which it gives is needed to break the clods. Figure 3 shows the form of seat that may be put upon the roller for the convenience and safety of the driver. It consists of a board of sufficient strength to hold a person, and provided with long legs well braced. This "stool" is then fastened astride the roller in the middle, the lower ends of the legs fitting closely into the front and rear of the roller frame. The front end of the board may be shaped so that the driver may sit astride. The whole cost of a roller thus equipped is not great, and it will last for many years, with proper storing when not in use.

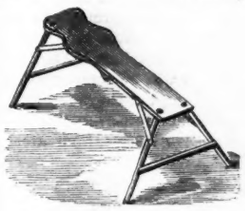
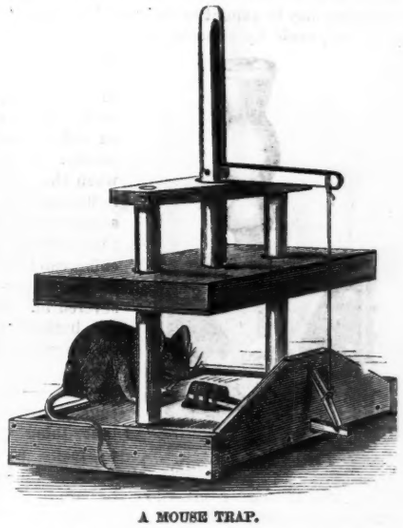


Fig. 3.—SEAT FOR ROLLER.

Another Mouse Trap.

Mice are not the friends of man, and until they change their manner of living, or leave the country, traps to catch them will always be needed. The trap that will capture the greatest number of mice in the shortest space of time, and with the least expense, will be the best. Mr. J. B. Ritze, Franklin Co., Ohio, sends a sample of a trap of his make, which he has used with great success since 1847. It consists of a piece of board, on which two wood standards are placed, and these are united at the top by a short strip of wood. Through this top piece a round stick passes, carrying a heavy hardwood board of the same size as the floor of the trap, and held from whirling about by the standard pins, which pass through holes near the ends. The trap is set by raising the heavy board, and securing it in place by a key, and string, which runs down to the "tumble piece" of a "figure four," on the



A MOUSE TRAP.

outside of the trap. The trap is shown set in the engraving. As the mouse nibbles the cheese fastened on the end of the long stick of the "figure four," the "tumble piece" is thrown out, the key flies up into a slot in the stick, carrying the heavy board, and down comes the latter upon the mouse.

This trap can be made of almost any size, to suit the animal to be caught, and may be useful in taking larger "game" than mice. It is not patented.

The Cabbage Worm.

The most troublesome pest to the Cabbage-grower is the green caterpillar generally known as the "Cabbage Worm." In some localities it has destroyed the entire crop, involving a loss of many thousands of dollars. After one of these visitations a locality will be comparatively free from them for some years, but they are quite sure to be troublesome somewhere every year. As with most other destructive insects, their great increase is accompanied by a still greater increase in their natural enemies, without the aid of which the cultivator would be much less successful in his warfare upon insect pests than he now is. The most destructive natural enemies of insects are other insects; these are often very minute, and some may attack the pest in every stage—egg, caterpillar, pupa, or in the perfect state. Many of them live within, and eventually destroy the host. The Cabbage Worm has several of these parasites, but the cultivator can not wait for them to do the whole work, he must resort to more rapid means when the enemy comes in force. For the aid of those to whom the insect is a new comer, we may say that the worm comes from eggs that are deposited on the under side of the cabbage leaves by a medium sized and rather pretty butterfly, which is white with a few black spots. These Cabbage-butterflies come early in the season, and are sometimes so abundant as to appear like a white cloud over the cabbage field. When such is the case it is evident that something must be done to destroy them or their greedy young, soon following them, will ruin the crop. Every female butterfly killed means the prevention of a multitude of worms and, therefore, a strike at the butterflies is the one that is most destructive. The butterflies may be caught by the use of an ordinary insect net, made by attaching a bag of mosquito netting to a hoop fastened to a round stick, such as an old broom handle. Even when the butterflies are not so numerous as to seem threatening, catching should be persevered in. If the butterflies are neglected and allowed to deposit their eggs, the next best thing is to make war upon the caterpillars; and the earlier this is done the better. The remedies effectively used in the case of the Potato Beetle, namely: Paris Green and London Purple, cannot be employed here, as it would be applying a deadly poison to the edible portion of the plant. The most successful remedy is hot water at about 160°—hot enough to kill the worms and not sufficiently hot to injure the plant. Apply the remedy at once, as the worms soon eat into the forming head.

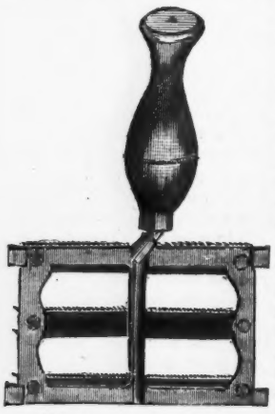


Fig. 1.—COMMON COMB.

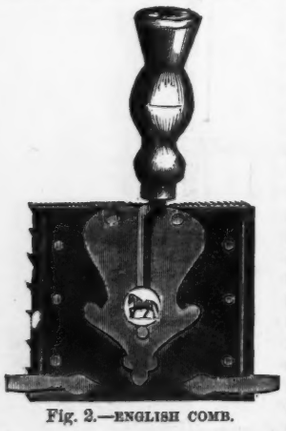


Fig. 2.—ENGLISH COMB.

Curry Combs.

It is not our purpose to treat the subject of curry combs from an historical standpoint, interesting as it might be, but to simply call attention to a few of the forms or styles of combs now in use. A curry comb as it is now made consists, speaking in a general way, of thin bars of metal, arranged in parallel rows, presenting smooth or toothed edges, and provided with a handle of some sort, by means of which it can be grasped by the hand. In figure 1, one of the simplest of the modern combs is shown, with six bars all provided with fine-toothed edges. The back is open, and the handle of wood extends from one side, and is joined to the comb by a trowel shank. Combs made in this form are of iron Japanned, iron tinned, and of brass. An English pattern of a solid back comb is shown in figure 2, which is styled "extra heavy." There are eight bars upon the face; and two stout "wings," one on each side, are provided for striking the comb against any object, as the side of the stall, for the purpose of cleaning it. This form of comb is largely used throughout the world. In figure 3, Hotchkiss' "Superior" six bar, closed back, is shown. This differs materially from the English in the manner of the attachment of the handle, which has, besides the trowel shank, two rods passing to the front of the comb. Figure 4 shows the way in which this style of handle may be grasped by the hand when long strokes are to be made upon the sides or back of the animal. The "Champion" is shown in figure 5—a six bar, solid back comb, with the trowel shank flat. A bent iron rod passes from one side of the comb to the other, making at the same time a part of the handle and the "dusting wings"—or "jar knobs," as they are variously called. The position of the hand in hard scrubbing with this form of comb is shown in figure 6. Of the "Novelty," which differs from the others in not having any wooden handle, there are several kinds. The one shown in figure 7 is the heavy eight bar, with open back. A close backed, one of the same style, is shown in figure 8, as also the manner of holding the comb. The loop made at one side receives the thumb, while the fingers grasp the bar that passes across the top of the comb. An easy side motion is gained with this comb with the hand in the position given. Figure 9 shows "Lawrence Perfect Comb," with the mane comb attached. The method of attaching the handle is by heavy wires, two of which pass along the back and sides, while two others pass over, and are fastened to the top in front. A great variety of combs of this style of handle are made, differing in the number of bars, and whether the backs are open or closed, etc. The manner of holding this form of comb is shown in figure 10.

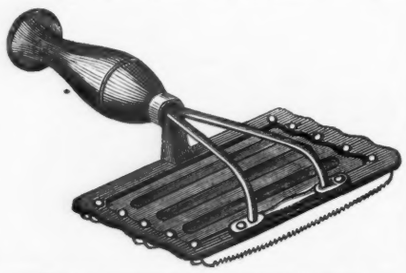


Fig. 3.—HOTCHKISS' "SUPERIOR" COMB.

Fig. 4.—METHOD OF HOLDING COMB.

Not a tithe of the curry combs that are in use are here given—in fact, only here and there one from a long list of them. They are all so perfect that one can not go amiss in buying any of those illustrated.

As regards their use, it goes without saying that they are implements which no lover of neat looking, well cared for, and healthy horses will be without. Like all good things, curry combs have their place and their use; they can be abused; but the tendency is not in that direction.

Milking and Milking Time.—Any one who has had to do with dairy farming, knows that there are a great many poor milkers, against a few who understand and practice the proper method of removing the milk from a cow. It is a well-known fact that some persons can obtain more milk from a cow, with greater ease and in quicker time than others. In the first place, there must be an air and spirit of gentleness about the milker, which the cow is quick to comprehend and appreciate. It is not to be expected that a cow, and especially a nervous one, will have that easy, quiet condition so necessary to insure an unrestrained flow of milk, when she is approached in a rough way, and has a person at her teats that she justly dislikes. There must be a kindness of treatment which begets a confidence before the cow will do her best at the pail. She should know that the milker comes not as a thief to rob her, but simply to relieve her of her burden,

Fig. 5.—THE "CHAMPION" COMB.

and do it in the quickest, quietest, and kindest way possible. The next point in proper milking is cleanliness: and it is of the greatest importance if first-class milk and butter are the ends to be gained in keeping cows. No substance is so easily tainted and spoiled as milk; it is particularly sensitive to bad odors or dirt of any kind, and unless the proper neatness is observed in the milking, the products of the dairy will be faulty and second class. Those persons who can and will practice cleanliness while at the cow, are the only ones who should do the milking. It matters not how much care is taken to be neat in all the operations of the dairy, if the milk is made filthy at the start; no strainer will take out the bad flavor. Three all-essential points are to be strictly observed in milking: kindness, quickness, and neatness. Aside from these three is the matter of the time of milking. It should be done at the same hour each and every day, Sundays not excepted. It is both cruel and unprofitable to keep the cows with their udders distended and aching an hour over their time. We will add another *ness* to the essentials already given, namely: promptness.

Fig. 6.—POSITION OF HAND.

An Experiment in Deep Drainage.

Four years ago we laid a side-hill drain through a small pond hole at the depth of 15 inches, which

Fig. 7.—THE "NOVELTY" COMB.

was all that the fall allowed of at that time. The drain worked well, and carried off all the surface water that gathered, but failed to give maximum crops. Every season the area of shallow drainage has been marked by a stinted growth of cabbages, potatoes, beets, and carrots. The adjoining area which admitted of three feet drains, has given as good crops as could be desired. This spring we have dug a greater distance for an outlet, breaking through the rim of the basin that held the pond, and have put down tiles three feet, which works like a charm. The ground is cracking for several feet on each side of the drain, the water has disappeared, and the air has gone down after it. This ameliorating process going on above tile-drains is one of the most beautiful sights a cultivator can behold. Drains two and a half to three feet below the surface are a good investment in all wet or hard-pan soils. We notice, with great satisfaction, the rapid spread of tile-draining in some of the older Western States. Recent meetings of the tile manufacturers there show that in Ohio, Indiana, Michigan, Illinois, Wisconsin, and Iowa, they have 1,140 tile factories now, instead of 400 in 1870. During the last year they turned out 175,000,000 tiles, worth $2,812,500. The average depth of laying the tiles is 33 inches, and the cost of digging is from 15 to 30 cts. a yard, but in the yield of crops the increase is from 25 to 100 per cent. The cost of tiles is $6.25 per thousand, which is much below the prices we have to pay in the East. A stronger argument for thorough drainage by tiles than these brief statistics could not be presented. Even in the new States, where the soil is far from being exhausted, it is good economy to put down tiles. The good seed sown in the *American Agriculturist* from the record of Tim Bunker's Experiments in the Horse Pond Lot over twenty years ago, to the present, is springing up and bearing fruit. CONNECTICUT.

Keeping Off the Bugs.—We have frequently advised the making of frames to be covered with a pane of glass, for use in forwarding cucumbers, melons, and other semi-tropical plants in the garden. We have found these frames to serve a double pur-

Fig. 8.—USING THE "NOVELTY."

pose, in keeping the striped bugs from the plants as well as in keeping them warm. A correspondent, "C. W.," uses similar frames for the insects alone. He writes: "The best investment I ever made was a few cents for mosquito netting last season. I had tried almost everything before recommended as infallible protection against the Striped-bug on vines by practical gardeners—dead clams, quassia water, soot, ashes, plaster, lime. Miserable comforters were these all. Heavy rains would wash off the upper sides of the leaves, and the under sides would always be exposed to the ravages of the bugs, so that eternal vigilance and much use of thumb and finger was the price of every squash, melon, and cucumber grown upon the place. But a few cents' worth of netting drawn over my bottomless box, or frame, large enough to cover the hill, makes light work of growing melons and cucumbers. Plant the seed as usual, and when the plants begin to make their appearance, the frames covered with netting are put over the hills. They need only be removed for the purpose of cultivation, until about the first of July, when the bugs disappear. Any store box, such as soap, starch, canned fruits, etc., are packed in, will answer.

The Temper of the Horse.

In a prize essay upon the English Cart Horse, published in the "Agricultural Gazette" (London), the author treats his subject under ten heads, as follows: "1, the size—2, the carcase—3, the back and loins—4, the shoulders and fore legs—5, the feet—6, the hind quarters—7, the head and neck—8, the color and skin—9, the action—10, the temper." We quote the remarks under the last head, because they apply as well to our farm and other horses as to cart horses in England. "A really vicious stallion or mare should scarcely be devoted to the stud. We ought not needlessly to risk the lives of our-

Fig. 9.—THE "LAWRENCE" COMB.

selves or the attendants, and we should not therefore run the risk of breeding biters and kickers, for, without undervaluing the late Mr. Rarey's system, which we believe to be good, we yet prefer adhering to the principle that 'prevention is better than cure.' Of scarcely less importance as regards utility, although not dangerous, is another fault which has been stigmatized as a vice, and which, in purchasing a cart horse, we guard against by the proviso that the animal must be warranted a good worker. We allude to a hot or fretful worker. We may endure such fault in a hack or single-harness horse, but in a hunter or a cart-horse it is a sin which cannot be forgiven. Such an animal is an eye-sore to the master, and an annoyance to the attendant. When at work he is always fretting and sweating, and when at rest looks mean and miserable. Jibbers and restive horses are of course to be avoided; the former vice is more likely to be hereditary than the latter, which often springs from bad management or rough usage, but the want of stanchness to the collar, which is understood by the first appellation, is frequently innate—hereditary."

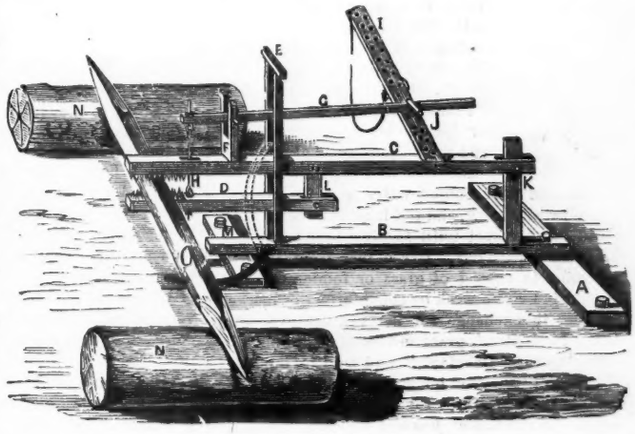
A Rail Holder.

Robert Erdly, Snyder Co., Pa., who "finds in the *American Agriculturist* nearly all kinds of drawings

Fig. 10.—THE "LAWRENCE" IN USE.

and descriptions of machinery that are needful upon the farm," wishing to contribute his share, sends a sketch of a Rail Holder, which he has used for eight years and finds very useful.

Directions for the construction of the machine: "The piece *A*, is made of 2-inch plank, 6 inches wide and 4 feet long with a pin hole at each end, as shown in the engraving; *B*, is of the same material, 8 or 9 inches wide, 4½ feet long; *C*, is a 3 by 4-inch scantling about 5½ feet long, and *D*, is of the same material about 3 feet in length. The piece *E*, is of 1-inch board, 3 inches wide, 3½ feet long, with a cross-piece on top. *F*, is 3 by 3 inches, about 16 inches long; *G*, is 1½ by 2 inches, 4 feet long. The iron rod *H*, is ½ of an inch thick; a chain will answer the same, if being about 21 inches long; *I*, of 1-inch board and 3 inches wide, about 3½ feet long with small holes. *J*, is an iron pin; *K*, an 1-inch board about 16 inches long, 3 or 4 wide; *L*, is 1 by 3 and 7 long; *M*, a curved brace about 16 inches long fastens with hinges to *B*; *N*, *N*, chopping blocks; *O*, the fence rail; *C*, and *D*, are made with sharp iron teeth in them, 1½ inch long, to hold the rail in its proper place, as shown in the engraving. In using this machine four stakes must be driven into the ground, one through the holes at each end of *A*, and one on each side of *B*, near the end at *M*, to keep the machine at its place. When a rail is ready to take out, draw out the pin,



A MACHINE FOR HOLDING RAILS.

J, raise up the lever, take hold of the beam *C*, and raise it up and place *M* under it; shown by dotted lines in the engraving; the rail is then loose, and the machine is ready, with its mouth open, for the next rail. This machine is also very useful for

hewing posts. Either one of the Blocks, *N*, can be laid against the machine to suit a right or a left-handed operator. The butt end of post must always be put in the machine. Every farmer or fence maker ought to have such a machine, as the rails can be pointed more regularly and with ease."

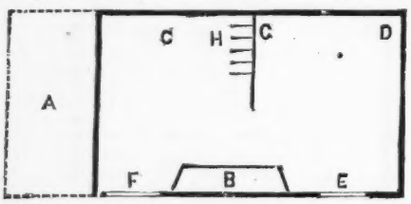
[FIRST PRIZE ESSAY.]

The Family Cow, and How to Keep Her.

She's broad in her hips and long in her rump,
A straight and flat back without even a hump.
She's wide in her lips and calm in her eyes,
She's fine in her shoulders and thin in her thighs,
She's sleight in her neck and small in her tail,
She's wide in her breast and good at the pail;
She's fine in her bone and silky of skin,
She's a grazier without and a butcher within.
—MILBURN.

There are several ways of providing for the wants of a cow, but in all cases it is absolutely necessary, in order to obtain the best results, that certain rules be followed with regard to the treatment the cow receives. She must be fed and milked at regular times, be kept thoroughly clean, have plenty of fresh air and water, and her food composed of those substances that will keep her always in good condition, do away with the milk bill, reduce the grocer's account, and contribute greatly to the health and comfort of the family. I have tried various things, and have found fresh grass or fodder, provender, bran, oil-cake, mangels, and hay, the best bill of fare for "Daisy" or "Buttercup." Avoid brewer's slops or grains as you would poison, for although they increase the flow of milk, it is thin and blue, the butter white and tasteless, and after a time the cow's teeth will blacken and decay. I was told the other day by a very intelligent dairyman that after feeding his cows one season on brewer's grains he was obliged to sell his whole herd.

Mr. Geo. E. Waring, Jr., in his "Ogden Farm Papers," says he expects to be able to feed a cow from May 15th to November 15th from ¼ acre of ground, but the average citizen had better not attempt it, but keep his half acre to raise vegetables



PLAN OF COW STABLE.

and fruit, buying what food he requires to keep his cow. A cow can be made very profitable if kept in the following way: First, as to the accommodation required, a yard 15 feet by 15, and a stable or cow-shed arranged as in the following plan. *A*, manure shed; *B*, bin for dried earth; *C*, cow; *D*, store-room; *E*, window for putting in hay; *F*, door; *G*, trap to loft; *H*, feeding trough. Her food to be provided as follows: Into a common wooden pail put one quart of provender (provender is oats and peas ground together, and can be purchased at any feed store), ½ lb. of oil-cake, then fill the pail nearly full of bran and pour boiling water over the whole; stir well with a stick, and put it away covered with an old bit of carpet until feeding time; give her that mess twice a day. Her dinner from June to November to consist of grass or fodder cut and brought in twice a week by some farmer or market gardener in exchange for her manure and sour milk. In Montreal, grass and fodder is brought to market by the "Habatants," and sold in bundles. As to quantity, a good big armful will be sufficient, and it is more healthful for the cow if it is a little wilted. In the winter, hay and mangels are to be fed in place of the grass and fodder. She should also have salt where she can take a lick when so minded, and fresh water three times a day. The yard should be kept clean by scraping up the manure every morning into the little shed at the end of the stable. The following table shows the food required to keep one cow well the entire year:

Hay, the best, 2 tons, at $10 per ton	$20 00
200 lbs. of oil-cake, at $4 per 100 lbs.	8 00
800 lbs. of provender, at $1 per 100 lbs.	8 00
½ ton of bran, at $12 per ton	6 00
1 ton of mangels	5 00
	$47 00

Your cow will require the following "trousseau":

1 five-gallon stone churn	$1 25
1½ doz. tin milk-pans, at $2	3 00
1 milk pail and strainer	60
1 butter bowl (wooden)	50
1 paddle and print	20
2 wooden pails for feed	40
1 card	25
	$ 6 20
Cost of a good cow	40 00
Interest at 8 per cent	$3 69

Any ordinary family will take from a milkman at least one quart a day. We in Ottawa pay 8 cents per quart, making per year 365×8c., $29.20.

It is a very poor cow that will not average 5 lbs. of butter a week for 40 weeks, and that at 25 cents per lb., that is, 40 weeks×5 lbs.,×25c., equals $50.00.

So the account stands thus:

Butter	$50 00
Milk	29 20
	$79 20
Cost of food for one year	$47 00
Interest on cow and trousseau	3 69
	50 69
Profit	$28 51

I have found that two acres of land is the least possible area that will provide cow-food for the entire year, and that should be divided thus: One acre for hay, the other for fodder and mangels. If you have no land already seeded down, plow up your acre, sow clover and timothy, 6 lbs. of each. In May, when the grass has fairly started, top-dress it with two bushels of land plaster; if you can apply it just before a rain it is the best time. The first year you will have all clover hay, and it must be cut before the second blossom comes; if not cut early enough, the stalks become tough and woody, and are wasted by the cow. The second year, if top-dressed in the fall with the manure collected during the summer, you will have a fine crop of timothy, and if the land was good for anything you can cut hay from it for three years by giving it a little manure every fall. As early as the ground will admit, sow some peas and oats; one bushel of each will plant one-third of an acre. Peas do well on old sod, and are the best crop to plant on new ground. In about six weeks you can commence cutting it for fodder, and it should give the cow two good meals a day until corn comes in. L. B. Arnold, in "American Dairying," says of corn: "When too thickly planted its stems and leaves are soft and pale, its juices thin and poor. If sown *thin* or in drills, so that the air and light and heat of the sun can reach it, and not fed until nearly its full size, it is a valuable soiling plant." Now Mr. Waring, in "Farming for Profit," says: "It is a common mistake when the corn is planted in drills to put in so little seed that the stalks grow large and strong, when they are neglected by the cattle, the leaves only being consumed. There should be 40 grains at least to the foot of row, which will take from four to six bushels to the acre, but the result will fully justify the outlay, as the corn standing so close in the row will grow fine and thick." My experience tells me that Mr. Waring is right; any way, my cow will not eat the coarse stalks which will grow when the corn is planted too thin.

The one-third acre reserved for mangels, must be the perfection of richness, well drained, and manured. If the soil is deep, you can plant them on the flat, but if the soil is shallow, plant them on ridges, the ridges 30 inches apart, (I always plant them in that way); then thin out the plants to 15 inches apart. Ten to twelve hundred bushels may be grown on an acre, but the ground must be properly prepared. In storing them, they require to be very carefully handled, as the least bruise hastens decay, and we want to keep them fresh and good until April, when our cow ought to give us a calf.

I thought I had tried almost everything relating to the care of cows, but when I undertook to wean a five weeks' old calf, I found my education in that respect sadly neglected. I asked a farmer's wife how I was to manage, "Oh," she said, "just dip your fingers in the milk, and let the calf suck them a few times, and it will soon learn to put its nose in the pail, and drink." It sounded simple enough, so I took my pail and started for the barn, where that wretched animal slopped me all over with milk, bunted me round and round the pen, until I was black and blue, sucked the skin off my finger, and wouldn't drink. After trying at intervals for two days, the calf was getting thin, and so was I. In despair, I left the pail of milk, giving that calf a few words of wholesome advice. When I went back two hours after, the calf was standing over the empty pail, with an expression on its face, that I translated into an inquiry, as to why I hadn't left that pail there before. I have weaned several calves since then, but have never had any trouble. Leave them with the cow 3 or 4 days, then take a little milk and hold the calf's nose in the pail, it must open its mouth or smother, and when once it tastes the milk, will soon learn to drink.* When it is a week old, commence feeding with oil-cake, skim milk, and molasses. Into an old 2-lb. peach can, I put one tablespoonful of oil-cake and one of molasses, fill up the can with boiling water, and set it on the stove until thoroughly cooked. That quantity will be its allowance for one day, mixed with the skim milk. The next week give it that quantity at each meal, and the next week twice that. The calf will then be four weeks old, and the butcher ought to give you a price for it that will pay for all trouble and the family milk bill while the cow was dry. It does not pay to raise calves where you only keep one cow. (Mr. Cochrane, the owner of the celebrated cow, "Duchess of Airdrie," told me the other morning that last year he sold a calf of her's to an English gentleman for 4,000 guineas ($20,000). I think it would pay to have a wet nurse if one had a calf like that). A tablespoonful of lime-water put in the milk now and then will prevent the calf from "scouring," a complaint very common among calves brought up by hand. I believe that winter rye makes a valuable soiling plant, but I have never tried it.

A Few Words as to General Management.

I think it cruel to keep cows tied up all summer. They do not require much exercise, but fresh air they must have, and it is a great comfort to them to lick themselves, although they ought to be well curried every day. It is better to milk after feeding, as they stand more quietly. Don't allow your milk-maid to wash the cow's teats in the milk pail, a filthy habit much in vogue. Insist on her taking a wet cloth and wiping the cow's bag thoroughly before she commences to milk. A cow ought to be milked in ten minutes, although the first time I undertook to milk alone, I tugged away for an hour. I knew how much milk I ought to have, and I was bound to get it. An old cow will eat more than a young one, but will give richer milk. If you can get a cow with her second calf, you can keep her profitably for 5 years, when she should be sold to the butcher. There is nothing that will keep your cow-shed so neat, and add so much to the value of your manure pile, as a few shovelfuls of dry earth or muck thrown under the cow. It will absorb the liquid manure better than anything else. Don't allow your milk pans to be appropriated for all sorts of household uses; you cannot make sweet, firm butter if the milk is put into rusty old tin. Skim the milk twice a day into the stone churn; add a little salt, and stir it well every time you put in fresh cream. Use spring water, but don't allow ice to come in contact with the butter; it destroys both color and flavor. If your cream is too warm the butter will come more quickly, but it will be white and soft. When the cream is so cold that it takes me half an hour to churn, I always have the best butter. Don't put your hands to it, work out the buttermilk with a wooden paddle, and work in the salt with the same thing. There is an old saying that one quart of milk a day gives one lb. of butter a week, and I think it is a pretty fair rule, but don't expect to buy a cow that will give your 30 quarts of milk a day. There are such cows I know, but they are not for sale. Be quite satisfied if your cow gives half that quantity. Place the cow's food where she cannot step on it, but

[* It is better, as a rule, not to allow the calf to suck at all. The aptness to learn to drink is influenced largely by heredity. Calves from ancestors that have not been allowed to suck, learn to drink more readily than those which have been allowed to run with the dam.—ED.]

don't put it high up; it is natural for them to eat with their heads down. I think it is better that the family cow should have a calf every year, provided you can have them come early in the spring or late in the autumn. As to the time that a cow should be dry, that depends much upon the way the cow was brought up. If she was allowed to go dry early in the season with her first calf, she will always do it. A cow being a very conservative animal, she should be milked as long as her milk is good. When she is dry stop feeding the provender, bran, and oil cake, give her plenty of good hay, with some roots, until after she calves. The provender and oil cake being strong food, are apt to produce inflammation and other troubles at calving time. You can feed turnips when she is dry, at the rate of two pails a day, cut up fine of course, but don't feed turnips when she is milking. I have tried every way to destroy the flavor of turnips in milk, but without success. I have boiled it, put soda in it, fed the cow after milking, but it was all the same—turnip flavor unmistakable—and as we don't like our butter so flavored, I only feed turnips when the cow is dry.

The Rev. E. P. Roe in his delightful book called "Play and Profit in My Garden," says: "If a family, in ordinary good circumstances, kept a separate account of the fruit and vegetables bought and used during the year, they would, doubtless, be surprised at the sum total. But if they could see the amount they could and would consume if they didn't have to buy, surprise would be a very mild way of putting it." The same rule applies to the keeping of a cow. We buy one quart of milk a day and manage to get along with it. Our cow gives us from 10 to 20 quarts a day, and we make way with the greater part of it. I think with a cow and a garden one may manage to live, but life without either, according to my ways of thinking, would be shorn of many of its pleasures. "BUTTERCUP."

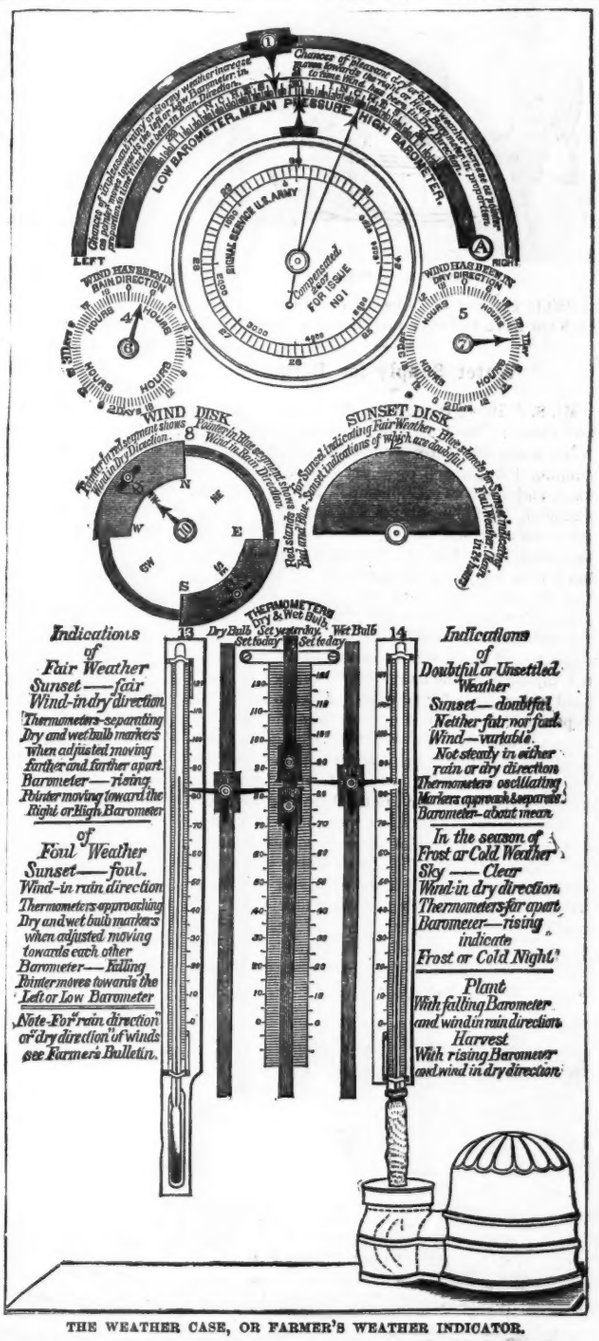
(MRS. G. BOURNOT, *House of Commons P. O., Ottawa, Canada.*)

The U. S. Signal Service and Farmers.

The benefits of the United States Signal Service in the weather indications furnished at the various ports have been of untold value to commerce; indeed, it can never be known how great has been the saving of life and property due to an observance of the "Danger Signals," set at its stations. In a measure the usefulness of the Service is to be extended to Agriculture, and arrangements are being made so that farmers living beyond the reach of the daily weather reports may of themselves, by a little careful observation, make forecasts of the weather much more accurately than they could without the aid furnished by the Signal Service.

The Weather Case, an engraving of which we are enabled to give through the courtesy of Gen'l Myer, the efficient chief of the Service (and known to so many by the familiar, but not disrespectful title of "Old Prob."), is made upon the principle that no single instrument is of much value as a weather indicator. Barometers have greatly fallen in public esteem because the makers foolishly mark on them "fair," "rain," etc., it not being possible for the instrument to give any such positive indications. A reading of the barometer with the wind in one direction, may indicate very differently from what it would with the wind in an opposite point. It is only when the *tendency* of the barometer is taken with the direction of the wind, and to these observations are added those of the Dry and Wet-bulb thermometers, and the character of the sky at sunset, that a tolerably accurate forecast can be made of the weather for the next day. Our object is merely to describe the instrument—or rather set of instruments, the whole being called "The Weather Case, or Farmers' Weather Indicator." As each case is accompanied with full and minute descriptions, with directions for making observations and deciding from these what are the "indications," we need only describe the different parts in general terms. At the upper part of the case is the Barometer, the circle with a graduated one within it and a long and short pointer. The Barometer with which our readers are most familiar is the Mercurial, a long tube containing mercury. In the Case a form of barometer called the *Aneroid* (a made up word meaning *not wet*, as it contains no liquid) is used—only the dial is shown—; it is a circular box of thin metal and partly exhausted of air. As the details would not be understood without an engraving, suffice it to say that this box is so arranged that its thin sides will change position with the pressure of the atmosphere; they will be pressed towards one another when the air is heavy, and move apart when it is lighter. This motion is communicated to the short hand seen upon the dial, upon which are degrees corresponding to the inches of a mercurial barometer. It is the short hand or pointer which is moved by the barometer; the long pointer is moved by hand to be directly over it, and to allow any changes made by the shorter one to be noticed. It also points to a graduated arc above, which we need not describe any further than to say that all above the circular dial is a contrivance for showing the mean barometer reading of the place for the month, and that its use is fully described in the circular. At the right and left of the barometer scale are disks for recording the length of time the wind has been in a particular direction. Next below on the left is the Wind Disk, to be set three times a day to show the direction of the wind. Opposite this is the Sunset Disk. A semicircular opening has behind it a disk, half of which is red and the other half blue. If the sunset was a fair weather one, the disk is to be turned to show its red half; if foul, its blue half, or if doubtful, then parts of both colors are shown. Below are the Thermometers. That at the left is an ordinary thermometer; the one at the right is just like it, except that its bulb is covered with cotton wicking, which is kept wet by having its lower end in a fountain arranged to hold a supply of water. The Wet-bulb thermometer shows whether the atmosphere is moist or dry, and is a most important aid in weather observations. Every one knows that clothes will dry more rapidly in a dry air than in a moist one; if the finger be wetted, and held in a dry current of air, a sensation of coolness will be felt. The Wet-bulb thermometer acts upon these two principles, that evaporation produces cold, and that evaporation is more rapid in a dry air than in a moist one. As water evaporates from the bulb of one thermometer, that will be cooled, and its reading be lower than that of the other thermometer just like it. Between the two thermometers are arrangements for showing how far apart the two thermometers are at any given time. In dry weather they will be farthest apart; if the two readings are coming nearer together, the air is growing more moist—one of the indications of a change. By a careful study, according to the directions given, of the *changes* that occur from day to day, an observant person may soon learn to foretell the weather with a useful degree of accuracy and certainty. The real Case is 31 inches high, 13¼ inches wide, and about 4¼ inches thick. The front is covered by a glass door, which is kept closed except when making observations and adjusting the different instruments; it resembles a clock.

The whole thing being quite new, we are not able at this time to state how and where the cases are to be distributed. In a general way we understand they are to go to those agricultural centers at a distance from large towns where the regular weather report is received daily, or twice a day, and where they will be of use in foretelling the weather for that locality. It is probable that we may be able to give something more definite next month.



THE WEATHER CASE, OR FARMER'S WEATHER INDICATOR.

A Hogshead Sheep Rack.

Mr. D. E. Manter, Kennebec Co., Maine, finds that a very convenient rack for a few sheep can be made in the following manner: An ordinary molasses hogshead is taken, and one of its heads re-

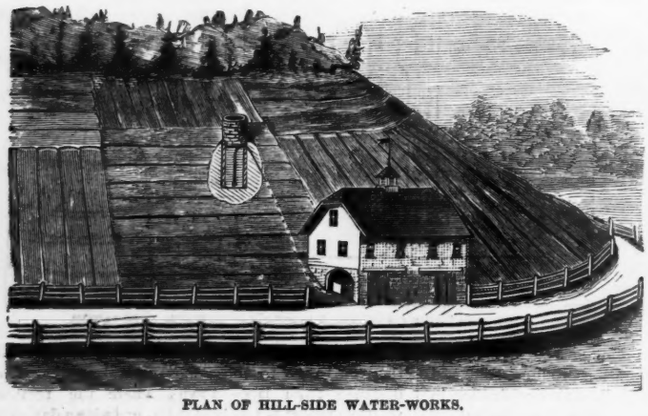
moved. The alternate staves in twos are cut away, in the manner shown in the engraving, thus making feeding places for a half dozen or more sheep. A rack of this kind can be made at very little cost; is handy to put the fodder into, and

A HOGSHEAD FODDER-RACK.

certainly can not be objected to by the sheep, as each one has a full and equal chance to feed from it.

Water Supply for Barns.

Mr. S. J. Boyd, Orange Co., N. Y., sends sketch, and writes: "In April 1876, I moved upon a farm where water was scarce around the barn. During the summer I dug a well on a dry side-hill above the barn, and some 20 rods distant. The well (7 ft. in diameter, by 27 ft. deep), was so far above the barn, that it could be dug somewhat deeper, and then draw water from the bottom of the well, to the barn, with a siphon. Eighteen ft. of the 27 dug, was through very hard slate rock, which was loosened with Common Rock, and Giant Powder, the latter doing greater execution with the same drilling, and much more convenient, as water does not injure it in the least while blasting; in fact, I used water alone for tamping. After reaching the depth of 27 ft., I stoned up only from the top of the rock, about 9 ft. The well then having cost considerable, and not being entirely satisfied with the supply of water, I did not care to spend any more money laying pipe, etc., until there was reason to believe the supply of water was sufficient to keep at least a small stream of water constantly running. November 18th, 1878, I finished laying a half-inch lead-pipe from the well to the barn, and started the water running. Although last winter was a cold one, and many farmers were short of water for their stock on account of the long cold spell of weather, my rock-well gave a stream of water and did not fail, neither has it failed up to the present time, (Dec. 2nd, 1879.) This gives me every reason to believe that my dry side-hill water-works are a success, and the convenience for cooling milk, and watering stock, is worth more than the interest on the cost of the well, lead-pipe, etc., which at present prices, would amount to about $100."—[The accompanying engraving shows the method which Mr. B. has found so satisfactory, and it may suggest to others having a side-hill farm of a similar nature, that a like investment may greatly benefit them.—ED].



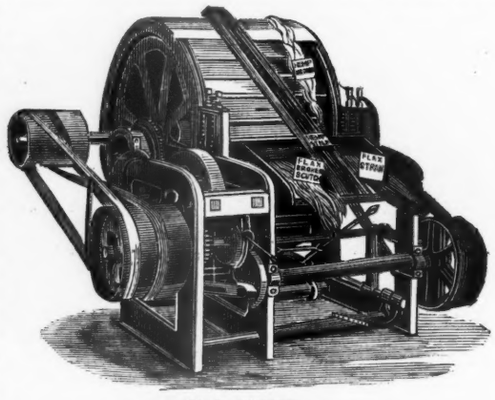
PLAN OF HILL-SIDE WATER-WORKS.

Prickly Comfrey.

The *American Agriculturist* was one of the first journals to bring Prickly Comfrey into notice, and while we were very guarded in what was said about it, there are so many who take the mere mention of a new thing as an advertisement, we were quite desirous that it should not turn out to be a failure. Singularly enough, since we published an account of its being planted largely in Massachusetts in the spring of last year, not a single report came to us. This spring several inquired as to the present status of the plant, and wishing to know ourselves the present opinion of those who have grown it longest, we made the inquiry of Mr. Ashburner, of Virginia, the gentlemen whose communication we published with our first article on the subject. Mr. A. writes, that he has no new facts either for, or against the plant, and is "still of the opinion that it is a very valuable fodder plant, and worthy of a place on every farm in America." Mr. A. was the first in the country to import the Comfrey, and at first sold the plants, but he writes that he gave up the sale, among other reasons, because he did not care to be subject "to gross insult, from buyers who could not, or would not take the trouble to cultivate it properly, and then would not take the trouble to educate their stock to eat the fodder, when grown." This no doubt touches the cause of whatever lack of success it may have met with, for animals do not take to it at first, any more than wild horses will to corn, or people who never have eaten them, to olives. It takes a few days feeding, mixed with other food at first, before the majority of animals will accept and eat it by itself, and few will take the trouble. Mr. A. says, and we think with truth: "Unless farmers will cultivate carefully their Comfrey, and give it a plenty of manure, they had better not trouble it;" he adds: "I look upon Prickly Comfrey as the *most valuable* green food for pigs, as far as my experience goes, and fresh pork fattened on it is worth eating." On the whole, we think that the plant is one that will be useful to those who will take the trouble to make it so; in hit-or-miss farming it has no place.

Flax and Flax Machinery.

No country can be regarded as really independent of other countries unless it produces not only all the food, but all the clothing material it consumes. So far as cotton and wool are concerned, we produce an abundance, but for flax and the fabrics made from it we are largely dependent upon others. Three agricultural products seem to make very slow progress in this country: sugar, from beets, oils, such as rape, colza, etc., and flax and similar fibres. One reason why these have not become important products of our agriculture is, because the farmer can not convert the raw material into a salable product, as this either requires expensive machinery and skilled labor to use it, or the processes by hand are slow, and, of course, costly. If the farmer is to be expected to produce the raw material only, he must be assured of a market before he will undertake its culture. Capitalists are not ready to establish factories until sure of a supply of raw material, and it takes a long time to establish the proper relations between the two—the farmer and the manufacturer. In the case of sugar, good progress has been made within a few years, and it looks as though we might, within a short time, cease to import sugar. In the matter of oils, our wonderful stores of petroleum, and the improvements in utilizing the heretofore almost wasted cotton-seeds, make it little necessary for us to seek any other sources of oils for burning, soap-making, etc. With flax and other fibres, one great obstacle to their profitable culture has been the slow processes of bringing them into marketable condition, which, at our prices for labor, made the raw material too costly. Every invention that tends to diminish this labor is of the greatest importance to the agriculture of the country. It was with no little interest that we recently watched the working of the



FLAX MACHINE.

machine of the American Vegetable Fibre Co., of Philadelphia, which breaks and scutches the flax at one operation in the most rapid and complete manner. The engraving shows the general appearance of the machine, which is very compact, taking up no more room than an ordinary grain fanning mill. The bunch of flax being spread upon the table in front of the machine, the stalks are caught in a set of grooved rollers, these by their peculiar motion cause the breaking, when the flax passes on to the scutchers, placed in the elevated part of the machine; after being subjected to their action for a short time, it depending upon its condition, the flax comes back, is turned, and the other end is submitted to the same operation. All of this takes but a very little time, and at the last motion the workman has the flax in hand, beautifully clean and shining, with not a fibre tangled or displaced. The operation is as thorough as it is rapid, a careful examination failing to discover any appreciable amount of boon remaining to be removed by the hackle. The officers of the Fibre Company are very enthusiastic over their machine and its effect upon the agriculture of the country, and when they assert that the machine "bids fair to give a new history to the whole business"—referring to flax-growing—we can not think them extravagant. One of these machines in each flax-growing township would make a vast difference to the profits of the farmers. To those who now raise flax for the seed, the machine will be of the greatest value, as by proper care in handling they may get a crop of fibre as well as one of seed. If seed is to be saved, the flax is harvested when the stem has lost its green color for two-thirds of its length; it is made into small bundles, and the few inches of the seed-bearing portion of the tops cut off with a hay or straw cutter having a single lever-knife; the stalks are then ready for rotting in the usual manner. We did not see the machine work upon hemp, but samples of the fibre that had been broken by it showed that it is equally useful for that crop. We so thoroughly believe in a diversified agriculture that we gladly welcome any improvement that will allow our farmers to add another to the crops which they may grow with profit, and think it will be well for those who have land suited to flax, to consider whether they might not find it to their interest to undertake its culture. We have recently learned that a machine has been invented in New Jersey which does for Ramie and similar plants what this machine does for flax; thus the subject of fibre production is rapidly increasing, and we shall watch its development with the greatest interest.

California Fritillarias.

Those who know the stately Crown Imperial, with its corona of inverted flowers as large as tulips, lifted 3 feet or more upon a sturdy, leafy stalk, would hardly recognize in the delicate flower here figured any close relationship, much less suspect it of being an own brother. We are aware that some botanists do not regard Crown Imperial as belonging to *Fritillaria*, but whatever they may do with it, the relationship will remain as close as ever. California is rich in plants of the Lily Family, there being a large number of charming species, though they are as yet rarely seen in cultivation. Of Fritillarias, the excellent recent monograph of the Family, by Mr. Watson, shows California to have nine species, of which the one here shown, if not the largest, is by far the most showy. The bulb, about an inch in diameter, has many short and thick scales, and is in appearance unlike the exotic species. In this plant the stem is from 12 to 18 inches high, and bears whorls of narrow, pointed leaves, like those in the engraving, and at the top one to three, usually, but sometimes as many as seven, flowers, about an inch long, of an elongated bell-shape. It will be noticed that the tips of the petals are strongly bent backwards, which is not the case with the other species, and on this account it was called *Fritillaria recurva*. The color of the flowers is usually a bright orange scarlet, but sometimes crimson, which makes them decidedly showy. The plant was originally discovered near Sacramento, and is found in various parts of the Sierra Nevada. A few years ago it was sent to us from Sierra Co., as the "California Tulip," a name also given to more than one other plant. Another species which we have (April 26) just coming into bloom, is *Fritillaria pudica;* this has bright lemon-yellow flowers, which are much larger and broader bell-shaped than this. Besides these with red and yellow flowers, *Fritillaria lanceolata*, with its blotched and marked blackish-purple petals, like the old "Guinea-Hen Flower" (*F. Meleagris*), presents a marked contrast in colors. Nearly all the species are desirable, and will no doubt be popular when we learn to treat them properly. The bulbs we planted last fall flowered freely this spring; what will be the effect upon the bulbs of our wet autumns after a dry summer, remains to be seen. In California, rains coming after a long season of rest through dryness, announce the beginning of spring; with us, it is the beginning of winter. Should autumn start the bulbs into growth, that will be the end of them. It will then be necessary to take up the bulbs when the leaves die off, and keep them out of the ground as late as possible before planting. Not only the Fritillarias, but the various species of *Colchortus*, and related bulbous plants, the flowers of which, though not as a general thing very large and showy, are often of such quiet beauty, that we would not abandon their culture, if any amount of pains-taking, and observance of their peculiar wants will allow us to obtain success with them.

A CALIFORNIA FRITILLARIA (*Fritillaria recurva*).

Alpine or Rock-Work Plants.

Nothing about modern gardening is more apt to be misunderstood than rock-work. Most plants that will grow in flower pots can be made to grow in pockets of earth in a pile of rocks. This pile of rocks can be placed in the middle of a lawn, and as the rocks are apt to be of different colors, they can be made to look all alike by a coat of cement, or still worse, of whitewash. Not only can all this be done, but it is done, and it is a rock-*work* indeed, for there is nothing in the thing, its place, or the plants with which it is filled, that is not thoroughly artificial, while the only reason for having a rock-work at all is, that it introduces a bit of natural scenery where it did not before exist, and allows us to bring variety into the grounds. Unless there is some nook or corner about the place where rocks might naturally occur—and if they did so occur on the lawn they should be blasted out—it is better to leave the rock-work to those who have a proper place for it. But our object is not just now so much the rock-work itself, as the plants proper to grow upon it. Begonias, Geraniums, and bedding plants generally are entirely out of place on the rock-work, as they, for the most part, do much better in beds or in pots, and their whole port and bearing is a protest against planting them there. It is on the high mountains that natural rock-work is seen in its greatest perfection, and there we find plants, usually of low stature, spreading themselves over the surface of the rocks and blooming freely, while their long and fine roots are far down in the cool soil that fills the crevices. But as rocks are not confined to the high elevations, so the plants suited to the rock-work need not of necessity be those naturally alpine. Indeed, in gardening works the term "alpine" is applied to many plants that never get above the general level. In the high regions of terrific storms and on the edges of perpetual snow, the only plants that can live are those of a low stature; only such as are found here are properly alpine, but in a garden classification other plants of low stature and similar compact habit are included also. The term rock-plants or rock-work plants is coming into use in place of "alpine," and is preferable, as it is equally definite and much more accurate. We not long ago, at an exhibition, heard a plant spoken of as "a lovely little alpine," that never knew a higher station than the pine-barrens of New Jersey, but it was a "lovely little" rock-plant. In saying that the rock-work should not rise as an irruption

THE BALEARIC SAND-WORT (*Arenaria Balearica*).

THE ROCK LYCHNIS (*Lychnis Sagascæ*).

(or eruption) upon the lawn, it is not on account of the exposure, but as in bad taste; the rock-work need not be in the shade; it may be placed there, but then the plants selected for it must be of shade-loving kinds. The true alpines have the most complete exposure, at least all parts but the root, and that has the most complete protection. In artificial rock-work success largely depends upon imitating these conditions for the roots, hence in constructing the rock-work, closed pockets should not be made, but crevices of various sizes, and the earth in these should connect with the soil below, so that at a distance below the drying sun and air the mulching influence of the rock will be aided by capillary attraction in keeping the soil of the crevices genially cool and moist. One may devote a rock-work to special classes of plants, or to a variety; ferns, many of which are well suited to rock-culture, make a pleasing collection; the succulents, including the Stone-crops and House-leeks, the hardy Cacti, and others form an interesting collection of curious forms, but most persons will prefer a variety, and their tastes may be gratified by collecting suitable and inexpensive—but not less beautiful wild-flowers, or by the purchase of exotics suited to the purpose. Among our natives the Early Saxifrage, the charming Bluets (*Houstonia*), Trailing Arbutus, Wind-flower, Rue Anemone, Columbine, Harebell, Moss Pink may be mentioned; these show what beauty and variety may be found among our native flowers without naming a host of others equally pleasing. So popular have such plants become in England that Mr. Robinson's book on "Alpine Flowers for English Gardens," as stated some time ago, has passed to a second edition, and one who would know about the numerous list of these plants should consult that work. Most of our florists offer more or less of the exotic alpines, and they are made a specialty by a few; whenever there is a demand for such plants it will be met by our enterprising dealers. In looking over a collection of such plants at the establishment of Messrs. Woolson & Co., we selected two of the newer kinds—new to this country—as showing a habit of growth very effective upon a properly constructed rock-work where there are miniature steeps or rocky shelves, over which some plants can trail their stems or hang down in diminutive garlands. The Rock Lychnis, *Lychnis Lagascæ*, is from the Western Pyrenees; it is a free-grower, quickly forming a mat of stems and foliage, and producing in early summer a great profusion of rosy-pink flowers like those shown in the engraving. It is especially valuable in not requiring much moisture, but will flourish in the driest parts of the rock-work. The Balearic Sand-wort, *Arenaria Balearica*, from Corsica, is remarkable for its foliage, which is of the most diminutive kind; its leaves seem more like those of a Selaginella than of a flowering plant, and in the mass make dense mossy cushions or a tiny carpet of the most pleasing verdure. Unlike the other this prefers a fairly moist situation, where it will cling to the rocks and throw out roots against their bare face. The tiny flowers, each upon a slender stalk an inch or so high, appear against the dark green like little pure white stars. The engravings show both plants of the natural size, and they both may be cultivated in the garden border, or even in pots if it is desired to do so.

A Tree-Scraper.

A short-handled hoe is the implement generally used for scraping the trunks of neglected and moss-grown trees. Mr. W. E. Bower, Clark Co., Ind., sends a drawing of a Scraper which he prefers to any other. A piece of inch-board 8 inches long and 3½ inches wide has a curve cut upon one side an inch deep in the center. A piece of strap-iron 1¼ inch wide is nailed to both the curved and the straight edges of the board, which are bevelled to meet them. A handle 20 inches long is fitted to a hole in the center of the board. Mr. B. uses the curved edge first, with an up and down movement, which removes all the loose scales of bark; if any fragments escape, an application of the straight edge will displace them.

The Elderberry Fungus.

Anything that is out of the ordinary run of things—is, in other words, a little strange—will in most cases find its way to our office with that question of all questions, "What is this?" This year we will anticipate a call for information by presenting a drawing, with a brief description, of the fungus which attacks the leaves and young branches of the common Elderberry (*Sambucus Canadensis*). This parasitic fungus belongs to the same group as the well known wheat rust; and as found on the Elderberry it is of the "cluster cup" form. It is

THE ELDERBERRY FUNGUS.

to be remembered in the treatment which the *Wheat Rust* received in August last, that it was shown that there were certain distinct *states* through which the rust plant passed, one of which was upon the Barberry, namely, the "cluster cup" form. The form upon the Elderberry is this "cluster-cup" one. Where the other states of the Elderberry fungus grows is not known.

So far as the Elderberry shrub is concerned, this parasite is not specially injurious to farmers, because the Sambucus does not take any high rank as a fruit-producing plant. As the matter now stands, the fungus in question is more curious than injurious. The way the fungus attacks the young branches and leaves is often very striking. We have found them, and had them brought to us, where the stem for a foot or so was swollen to several times its natural size, and twisted into all sorts of shapes; the surface for the whole length being covered with minute pits or cups, each filled with a vast multitude of orange-colored spores. The specimen from which the illustration is made is scarcely up to the average, but shows how thoroughly deformed the top of the branch has become; in fact, the growth of it has been entirely arrested by the fungus. One of the leaflets is seen to be rolled up, and its base greatly swollen, the surface of which is covered with the pits above mentioned; a few of them are shown in magnified view below and to the right. Small knots or enlargements are seen on some of the other leaflets, and one of some size at the union of the whole leaf with its stem.

The remedy, if it is desired to apply one, is the knife, removing all affected parts in early spring, which then should go at once into the fire.

Horticulture at the Railroad Stations.—A trip over the railroad between New York and Philadelphia, by the way of Bound Brook, the first since Centennial days, we were glad to notice the improvements at the stations. The grounds around the stations, some of half an acre or more, and others not larger than a city lot, had been put in beautiful order. Grass, evergreens, flowering shrubs, and in some cases flower-beds, made these usually desolate places charming spots for the eye to rest upon. They had an air of care and neatness that must exercise an influence throughout the neighborhood. But this road is not alone in well doing; happening to meet Mr. Hayes, a well-known horticulturist of Philadelphia, he informed us that he had the contract for laying out and planting the stations on the line between Philadelphia and Baltimore, some of which are of considerable extent, and occupy both sides of the road. The examples of these roads will soon find followers, for the improvement is so great as to commend itself to the most indifferent.

Gardening in Public Institutions.

BY PETER HENDERSON.

A number of the Public Charitable Institutions in all parts of the country have farms, gardens, and even greenhouses are attached, the work required by these being mainly done by the inmates. In some these grounds are exceedingly well managed, and are a source of no little revenue, while others are actually worked at a loss, either from uncongenial soil, or from inefficiency in the management. One of the best managed gardens of this kind that has come under our notice, is that of the State Hospital for the Insane, Mendota, Wisconsin, at present under the superintendence of Dr. D. F. Broughton. Having heard reports of its satisfactory garden management, I recently wrote to Peter P. Schotzka, the intelligent gardener in charge, and obtained the facts here given: The present area under cultivation is about 22 acres, about one-half of which (10 acres) is planted with potatoes, the remainder is devoted to vegetables of almost every kind found in the markets, together with grapes, strawberries, raspberries, melons, etc., all of which are consumed in the Asylum. This Institution numbers nearly 700 persons—about 100 of whom are employees. To supply this large family 8 bushels of strawberries are used at a meal, 250 lbs. of grapes, 150 water-melons, or 300 musk-melons. The market value of the whole garden products in 1879—which was a year far below the average—was $3,572. The expenses were: labor, $1,400; manure, $250; implements, $75; seeds, $75—making $1,800 in all, leaving a net profit of $1,772, or in other words, this sum was saved to the Institution by its growing; instead of buying its vegetables and fruits. But this was not the only advantage, the fruits and vegetables were fresh from the grounds, making them vastly more valuable than if packed and shipped from a distance. But the most important feature of the garden operations at this Asylum is the employment of the patients as workmen; an average of 15 are employed in the summer months, during the growing season, who work on an average six hours each day, and Mr. Schotzka, who is evidently a careful and intelligent observer, assures me that the effect on the health of the patients is most marked. They mainly volunteer, or are kindly coaxed to the work, and this labor in the open air, while it gives them occupation, directs their attention from themselves; the result is, that a greater number of the garden hands have been discharged as cured, in proportion to numbers, than of others.

No greenhouse is yet attached to the Asylum, but Mr. Schotzka manages, by the aid of hot-beds, to fill numerous beds that are laid out in the lawn in front of the hospital, with flowering plants. These he quaintly terms an "eye pasture" for the patients. These beds give flowers enough to form bouquets for the sick wards during the summer months, and thus are a source of great pleasure to scores of the unfortunates within. Believing in the soothing effects of flowers on some species of insanity, a gentleman recently left a fund of $10,000 to be used in building a Winter Garden or Conservatory, to be used as a promenade ground for use of the patients at an Insane Asylum in Ohio.

The successful example of the Mendota Asylum is one well worthy of imitation, and such a garden might be attached with profit to various other kinds

of public institutions, for in nearly all cases the labor could be mainly done by the inmates, not only without cost, but to their physical, mental, and moral advantage. The grounds surrounding the various public buildings on Blackwells Island, New York, and at Flatbush, Long Island, are, and have been so for many years, models of excellent cultivation, and reflect credit on the management; but there are many others in the suburbs, and hundreds in all sections of the country, where no attempt whatever has been made, and in others it is so feeble that it has amounted to nothing. There is no excuse for this. There are always men fitted to take charge of such work, to be had for moderate salaries, who, with the free labor by the inmates of the institutions, many of whom would like the work, could produce crops that would add vastly to the comfort and health of the inmates, to say nothing of the saving to the county or State.

Census of Forest Trees.

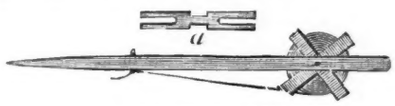
"A chiel's amang you takin' notes," or soon will be among the farmers about the forest-trees, and the care taken of them, and the uses made of them. Professor Sargent, the Special Agent for the Forestry of the Tenth Census, has had printed and widely distributed: *A Catalogue of the Forest Trees of North America*, of 93 pages, including a full index. It is printed on one side of the paper, so that there is a blank leaf facing every page of print. This is for making notes on. The trees are arranged under their natural orders; the botanical name is followed by the English names, then the geographical range is given, then the character of the wood, the size and port of the tree, and the known uses it is put to. If any one knows any of the trees outside of the range assigned to it, or knows any other uses of its timber, its bark, its fruit, etc., or knows any tree particularly remarkable in size or age, or otherwise, he is to make a note of it on the blank page, and send it by mail to Prof. C. S. Sargent, Brookline, Mass. If the sender wants to have his catalogue back again, to keep—as we suppose he generally will—the Professor will return it, or a fresh copy. Every one who can will wish to contribute to the Census Report on American Trees and Forests.

American Yellow-wood.—The Ladies' Garden Club of our Street, taking several horticultural periodicals, some of them English, occasionally get bits of news which are not quite adapted to our meridian, and which therefore puzzle them. For instance, Mr. Burroughs, in "The Garden" (London), for March 6, gives a glowing account of the above named tree, "or rather shrub," as he says, which "commonly attains the hight of 15 to 18 feet," though indeed he does know one more than 30 feet high; and he says "it has handsome yellow flowers." The ladies ask me what all this can mean. For all the old trees here are at least fifty feet high, and the younger ones grow apace, as if not meaning to be left behind. Then they know that the flowers are white, and are a deal handsomer than Mr. Burroughs allows. The meaning of it all is that this noble tree does not get summer enough in England, and hardly ever blossoms there. The author of the article, who says he has seen few specimens there, should have said that he never saw it in blossom; and he probably jumped to the conclusion that the flowers are yellow, because the botanical name is *Virgilia lutea* (or *Cladrastis lutea*), though he might have guessed that the "*lutea*" or yellow referred to the wood. He says he is indebted to a New York paper for the illustrations of the blossoms and seed pods—and they are so poor that they excite the commiseration of the Club. He surely could not have got the yellow from the same source. A. G.

[The Yellow-wood or Virgilia owes so much of its attractiveness to the graceful sweep of its branches, the airy pendulous character of its flower clusters, and its charming and peculiar green, that it is difficult to give an idea of it by an engraving of a small part, as we found when we figured a flower-cluster in the *American Agriculturist* for Nov., 1875. Perhaps, taken for all in all, it is the most beautiful of our native deciduous trees. Yet how few know this most desirable tree at all!—ED.]

A Garden Reel.

A convenient Reel for holding the line used in garden work, is presented in the accompanying engraving, from a sketch sent us by Mr. R. B. Kidder,



A CHEAP GARDEN REEL.

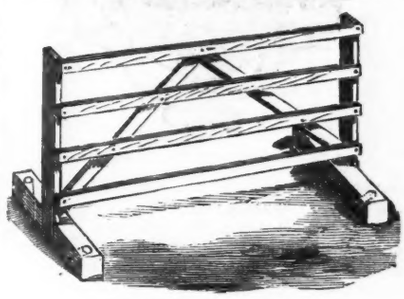
Columbia County, Wis. It can be made to suit the size and amount of cord. Mr. K., in making his, used a piece of inch oak, 4 inches wide and 3 feet long, sharpened at one end. A slot is cut in the top 2 inches wide and 12 inches deep, in which the reel is fastened. The shape of the pieces out of which the reel is made is shown at *a*. The cord is run through a hole one foot from the bottom of the standard, and secured at any place by looping the cord, or a small wooden pin may be used.

The Most Fragrant Honeysuckle.

When we come across a desirable plant, or fruit, we are sometimes in doubt as to the best time for bringing it to the attention of our readers. If we describe the plant or fruit at the time of flowering or ripening, it is likely to be forgotten at the time of planting. On the other hand, if we defer the mention of such things until the planting season, they are very apt to be crowded aside altogether by things that have come up and demand immediate attention. As between the two we think that the best time to notice a plant is when it is in its perfection, whether of flower or fruit. It is a doubt that has occurred to us many times, and especially as we were, about the middle of April, enjoying the fragrance of *Lonicera fragrantissima*, the Most Fragrant Honeysuckle, and considering how we could best make known the merits of so valuable, and yet so unusual, a shrub. This Honeysuckle is one of the bush sorts, a native of the north of China, and though it was introduced over 30 years ago, about the same time with the Weigelias, the Forsythias, and others from the same country, it does not seem to have shared the popularity of its more showy companions. The bush grows 5 or 6 feet high, and as soon as spring fairly opens, its branches are thickly studded with little clusters of nearly white flowers, which appear before the leaves show themselves. The shrub can not be regarded as a very showy one, but when it comes to fragrance, we know of no shrub of its season that equals it in this respect. Not the heavy overpowering fragrance that we often meet with, but that delicate spring odor which some one has aptly called "woodsy," and which we find in such perfection in the Trailing Arbutus—satisfying in itself, and still more delightful in the memories it suggests. For the rest, the shrub is perfectly hardy, and requires no particular care, except perhaps a shortening here and there, when it tends to grow straggling. Let lovers of fine shrubs make a memorandum, to be referred to next planting time, to the effect that no collection of flowering shrubs can be regarded as complete without *Lonicera fragrantissima*.

Another Tomato Trellis.

The above heading implies that we have already given other Tomato Trellises—and we have, a great many, from a rustic lattice-work of rough sticks up to permanent affairs, to be put away when not in use and last for several years. The fact that so many designs have been published, shows that a trellis of some kind is needed. If any of our readers have grown tomatoes without the use of something to support them, we advise them to not let the coming summer go by without a trial of one. Left to themselves, the tomato plants soon fall over, and a large share of the fruit rests upon the ground, often ripening unequally and soon decaying. Aside from the question of neatness, and that in a garden is an important point, the vines, when trained, are more productive, and imperfect fruit may be cut out. For eating raw, there is no comparison between tomatoes ripened upon a trellis, and in the usual way, upon the ground. The fruit, being all in sight, can be gathered at the proper time, and there will be no loss from over-ripening, and no injury to the vines in gathering. Sometimes the tomato plants are trained to a single stake, but other than as a matter of amusement, this is not to be commended, as so much of the plant has to be cut away. It makes but little difference what kind of a trellis is used. Whatever can be most readily constructed will answer, whether of sticks, slats, or wires; it should be strong, as the weight to be supported is considerable; about four feet is a convenient hight, though, if afforded support, the vines will grow much taller than this. Mr. Edmund Johnson, Winnebago Co., Ill., sends a sketch of the trellis here given; as his accompanying letter is an example of what such letters should be—to the point, giving all that is needed, and no more, we give it entire: "Our country gardens generally contain tomatoes, but they are allowed to grow along the ground without support, and thus the yield is very small. I send you a plan of the trellis that I use, and with very satisfactory results. The bases are pieces of 4 by 4 scantling, two feet long. A slanting hole is bored in each end, through which to drive a stout pin to keep the trellis in place. The upright pieces are 4 feet long, and 3 inches wide. The slats are 2 inches wide; 8 feet is a convenient length to make them. The manner of putting together may be seen in the diagram,"—which we may add was as clear as his letter is concise. Whatever kind of trellis is used, let the lower part



ANOTHER TOMATO TRELLIS.

be low enough to allow the plants to be tied to it before they fall down, and be sure to tie them before this happens, as after they have once fallen over it will be difficult to train them. Strips of cotton cloth are convenient to tie with. No other rule can be given than to tie the stems to the trellis where they seem to need it, and to cut away all the shoots that can not be tied without crowding.

Cultivating Water Lilies.

We have several times suggested that those who are fond of the most beautiful Water Lily, or Pond Lily (*Nymphæa odorata*)—as "who is not"—can cultivate it with very little trouble. Those who have hesitated to make the attempt will be encouraged by the following account of its successful treatment, by Miss Ruckman, St. Joseph Co., Ind. Miss R. Writes: "We have a half hogshead in our yard, which is sunk even with the ground. In the bottom is some of the soil taken from the bottom of a little lake where the Water Lilies grow. We put in several roots of the Lily, filled the barrel with water, and then awaited results. The next July we noticed seven small buds on the surface of the water; by the 1st of August, the surface of the tub was a mass of beauty, the large white Lilies being an attraction for the passers-by that could not be resisted. This was three years ago; each year there have been more flowers than in the previous summer. In the fall, we throw a little manure into the tank, place some boards over the top, and with this little bit of trouble increase the beauty of our experiment, which has been a success.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

A Cocoanut Flower Bracket.

The hard shell of the cocoanut in the country where it grows is put to a number of important uses by the natives. To them the cocoanut tree furnishes most of the necessities, and many of the so-called luxuries of their simple and indolent existence. If we should enumerate the uses to which the shell is put it would be a long list, and possibly not without interest; but the point now is to call attention to its employment as a Bracket Pot for the growth of such plants as are usually seen in hanging baskets. The engraving gives an idea of

A NEAT COCOANUT PLANT BRACKET.

the end to be gained. The contents of the shell are removed by taking off a small portion at the top. A bracket board, that is, the back piece of an ordinary ornamental wall bracket, is then attached to it near the middle by means of three screws, which pass through the bracket and into the shell. With a hook or a brass-headed nail driven in a convenient place, the bracket can be hung up, and is ready to be stocked with suitable plants. The whole construction is simple, and with the plants in good order, there are few things in home decoration that are neater, easier to make, and more satisfactory than this same cocoanut shell bracket.

Home Topics.

BY FAITH ROCHESTER.

Early Breakfasts.

I find macaroni an excellent thing for an early breakfast, the macaroni being boiled the previous day. I learned to use macaroni from the *American Agriculturist*, and it is now a very common dish in our family, and very popular too. The simplest method is the one most used by us. The macaroni is broken into short lengths and thrown into boiling water, boiled with a little salt until quite soft, then turned out into a little stone jar—(how handy these small jars are!) and set aside until next morning. I do not drain it (as the recipe says, and as I tried at first), but the liquor in which the macaroni is boiled forms a jelly when cool and dissolves again when heated in milk. In the morning, heat a pint of milk, a tablespoonful of butter, and a *little* salt and pepper, and turn the macaroni into it to heat, loosening it with your spoon as it heats. We cook about three-fourths of a pound at a time in this way, for a family of six. A little in a tea-cup in a school dinner pail gives great satisfaction. Stewed tomato is a good accompaniment.

Codfish Balls

are another convenient dish for early breakfast—the balls all made ready to fry on the previous day. I speak of them now in order to say that I do not find it necessary to soak the fish over night when I boil it. Wash it well in three or four waters, put it over the fire with a good deal of cold water, let this heat pretty hot (boiling or not), and pour off this water and add more of as high temperature as that poured off. Boil very gently ten or fifteen minutes longer, but be sure that the fish is thoroughly boiled through. Mix the fish (well picked up) and the mashed potatoes while the potato is yet warm, seasoning with butter and (if the weather is not too warm) a little milk. Make into biscuit-shaped balls ready to fry. They should be fried in only just enough hot butter to brown well.

The Baby Jumper.

About five years ago I told all about my baby's jumper, and a picture of the same appeared in the *American Agriculturist*. Another one has served the present baby, giving great enjoyment to all of the family. The first was attached to a long hickory "spring-pole." Perhaps there is nothing better, if you can fasten it securely to the ceiling and give it room to play up and down, passing through some kind of a strong staple placed a few feet from the end of the pole, which is fastened to the ceiling. This time we tried first a spiral bed spring, which we bought for five cents; it worked pretty well for some time and then was broken. A strong rubber band does very nicely; and may be fastened anywhere into the strap from the ceiling by which the jumper is suspended. Perhaps I had better tell once more, briefly, how the jumper is made. The seat in which the baby sits is a strong little jacket with a strap 3 inches wide fastened securely to the bottom of the waist behind, usually cut in the same piece. The waist of the jacket is buttoned together in front, the baby's skirts are laid smoothly, so as to cover and protect its legs like little trousers, and the strap attached to the waist passed between them and buttoned up to the front of the waist. This waist has no sleeves or arm-holes. Instead of meeting over the shoulders, it has four button-holes, two at each shoulder, one in front and one behind. Long straps, with strong buttons on the ends, button into these holes, two at each half arm-hole. These straps suspend the jacket seat, and are kept apart by being wound once around a barrel hoop and fastened there, half way up their length, leaving four even spaces on the hoop between them. The jacket may be as pretty as you like. Mine is made of strong, striped shirting, with a skirt 8 inches deep pleated around it—all bound with turkey-red. The hoop is wound with plain drab calico and turkey-red. The four straps, each about 2 feet long, are made of drab calico, quadruple in thickness. Above all this is the rubber strap and a small hemp rope—the whole is tied to a stout hook screwed through the plaster into a beam overhead.—[We reproduce the cut.]

A BABY JUMPER.

This jumper is an excellent baby tender. We put it up when baby was six months old, but did not use it much until the baby's limbs seemed strong enough to bear his weight, fearing crooked legs as a result. Soon it was just the exercise he needed for strengthening his limbs, and afterwards for helping him to learn to walk. He made unusually rapid progress in learning to run alone, but even after he had the run of the house, he delighted to be put into the jumper, and would go through his funny little gymnastics with great relish.

Little Girls' Underclothes.

A lady asks me how I make the underclothes "for girls eight or ten years old," just the ages I have to work for at present. I have often written on the subject, and my testimony is still the same. Perhaps the lady is a new subscriber to the *American Agriculturist*, and I briefly give the method: A long-sleeved moderately high-necked strong cotton waist, buttoned behind, with whole drawers buttoned to the bottom of this waist, seems most reasonable for moderate weather. Two or three thin, low-necked sleeveless waists are useful for the very hottest weather. The drawers should be large and loose in the seat, the waist loose in every part. Skirts can be buttoned to the same waist by a separate row of buttons. Flannel underclothes are more suitable for winter than now.

A Screen for the Bird Cage.

An ordinary Canary bird can make a great deal of work in proportion to its size, if no precautions are taken to keep his litter from being thrown out of the cage. Much of the food given to a caged bird consists of seeds with coarse hulls, and the seed-coats, after the bird has removed the kernel, are light and readily scattered to a considerable distance upon the carpet, table, or whatever may be below the hanging cage. To avoid the trouble of frequent sweeping and dusting, a screen of fine mosquito netting is now used by many lovers of caged pets. The netting—that of a pink color is perhaps the most attractive—is fastened around the cage, about midway between the top and bottom, by means of a ribbon, which can be easily untied when the cage is to be cleaned and the bird fed. The lower portion of the netting is brought together below the cage and also secured by a small tie. This latter does not need to be enclosed, as the netting opens down one side from the top, when the screen is easily removed. The accompanying engraving shows a cage thus decorated—for when neatly done it adds to the beauty of the whole. In the writer's home two birds are thus kept from throwing all sorts of litter upon the surrounding objects, and it is therefore from an actual experience that this cheap and neat screen is recommended for general use as a labor-saving contrivance.

SCREEN FOR BIRD CAGE.

A Novel Pin-Cushion.

An old, broken lamp stand has often served a good purpose as the standard for a very useful, as well as ornamental pin-cushion. So, many other little household articles, that have lost their original usefulness by missing some of their parts, have been put to a new service by some change which the mind of the housewife readily suggests. The case in hand is the construction of a cushion for pins upon the back of a worn out hair brush. A neat cushion is put where the bristles were inserted, into which the pins can be set in a manner to sug-

A NOVEL PIN-CUSHION.

gest the face of the brush when it was new. Such a brush pin-cushion is shown in the accompanying engraving. If further changes are desired a new back can be made by covering the old one with cloth, upon which a design in needlework can be made. A loop may be placed at the upper end, by means of which the cushion can be hung up in a convenient place. The binding around the cushion, and the other parts; in fact, the general make up will allow the exercise of a wide range of taste.

The Sweet Potato Vine.

An easily managed, and at the same time most beautiful vine for the window is that of the common Sweet Potato. The rich, luxuriant foliage of a vigorous vine is not so much appreciated as it ought to be, partly because of the general impression that a food-producing plant is not likely to be ornamental, hence the sweet potato is very little known as a beautiful climber. The treatment of the plant is very simple. A vase or any glass vessel, of convenient size to hold sufficient water, is all that is necessary. Select a good sound sweet potato, of a size that it will rest upon the edges of the vessel, while the lower end dips into the water. The plant being of tropical origin, a good degree of heat is required for its best development; a temperature of about 80 degrees is best. When once started, and given a plenty of light so soon as the leaves are putting forth, a handsome living, growing, window ornament may be produced. It is better to have a few strong and vigorous shoots than a mass of inferior ones; therefore if many shoots start, remove all but a few of the best. When the vines begin to grow well, they should be provided with a support, and trained entirely around the window, some of the shoots passing up one side, and some the other. A pretty ornament may be made by letting all shoots grow that will, and allow them to flow over the sides of the vase and hang down in a graceful manner. The chief care will be to keep up the regular supply of water which the plant will require in considerable quantity, as it is a vigorous grower, and to keep the leaves free of dust.

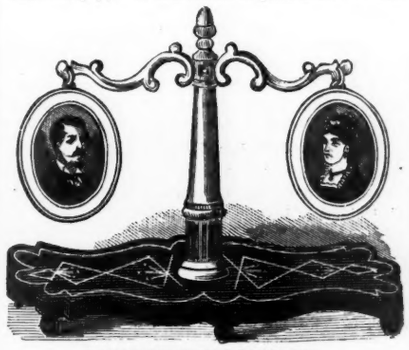
How to Make a Flag.

"H. C. M.," Rockland Co., N. Y., who is probably inspired by the approach of the 4th of July and its associations, writes to ask how to make a flag, and adds that "it will be of interest to all your readers that love the American Flag." In the first place the material for a flag for service is *Bunting*, a thin fabric of wool, made especially for the purpose. This is light and strong, and bears the constant whipping by the wind better than any other material. Flags for certain uses are made of silk, and if for merely decorative purposes may be made of any desired stuff. The flag consists of two parts, the *Field* and the *Union*. According to the regulations, the depth of a flag should be $^{10}/_{19}$ths of its width. In ordinary usage, half as broad as long will come near enough. The depth of a flag is called its *head*, and its length, from the staff outward, the *fly*. The *Field* consists of 13 stripes of red and white, standing for the 13 original States, beginning at the top with red. The *Union* is in the upper corner next the staff. It is seven stripes deep, and four-tenths the length of the field; it is blue, with white stars, one for each State of the Union. We do not know if there is any regulation for the size of the stars. Formerly the small stars were grouped to form one large star on the blue field of the *Union*, but now the regulation is that they shall be "in equidistant horizontal and vertical lines." The better way to fix upon the size for the stars is to first make a paper pattern; cut the stars from paper, and change the size until the proportion seems right. Recollect that a star should always be five-pointed, with one point pointing upwards. We hope that these dimensions will help "H. C. M." and many others to make a handsome American Flag, and, "Long may it wave."

Cooking Spinach and other Greens.—Bacon and Greens, or "Gammon and Spinnidge," as the old writers have it, is a combination not to be commended. In the old way of cooking greens with a piece of bacon or pork, not only is their delicacy of flavor lost—an important matter with Spinach—but the greens themselves become so thoroughly impregnated with fat as to be indigestable by most persons. The proper way with Spinach is, after washing and picking over carefully, to put it into a plenty of boiling water and allow it to cook, with the cover off, until tender; usually about half an hour. Then drain, chop fine, and place in a saucepan on the stove with a generous lump of butter until quite hot, then serve. Dandelions and other greens treated in this manner are greatly improved.

A Balance Picture Holder.

It was several years ago that the modern view of matrimony (?) was illustrated in pasteboard needle-



A BALANCE PICTURE HOLDER.

work in so many parlors and sitting-rooms. A heart—human, it was understood—was placed in one scale pan, and a dime, or even an old-fashioned three-cent piece, in the other, of a balance that did not balance—the great heart being too little to overcome the weight and therefore importance of the coin. The illustration of the Balance Picture Holder may suggest that old household ornament. As far as being a balance goes, it is a deception, but looked at in the light of a neat picture holder, it is undoubtedly a pleasing success. In the picture balance there are no scale pans, and the arm of the balance is stationary. It may be made to move as in a regular balance, but it will not be found as satisfactory as when made immovable. The bottom may be made of any nice piece of wood, and worked into any shape desired. The same may be said of the standard and the arms. In the choice of pictures it will naturally suggest itself that they should, in a certain sense, be balanced. Some may prefer to put the extremes of age against each other, as the grey-haired and venerable grandparent, and the latest new comer into the family. Again, others may wish to show the power of contrast in the extremes of beauty; in fact, there are many views to take in the matter of striking a balance in an instrument like this, and that question must be settled—and it is not difficult—in its own way to suit each individual case.

Around the House.—The men folk are generally annoyed at the sight of untidiness when it is within the house, but are frequently oblivious to the same when it is out-of-doors. It does not matter whether the occupant of the house owns the grounds or not, the surroundings should always be neat and attractive. No one gets so much satisfaction from a clean door-yard as the person who passes through it in going out and coming in, at least twice a day, and in most cases many more—the one who lives in the house. It is a false principle to "clean up" for the sake of the impression it will make upon a chance comer or passer-by. If there is any time above all others when the door-yard should be "put to rights," that time is when the grass is starting, when the flower beds are to be arranged, and the work of the hands of man is followed by the first, vernal activities of nature. But all through the season, an hour now and then in the yard pays well. The great excuse is the lack of time; but the busiest man has hours that he can spend in making the surrounding of the home look tidy; and the hours thus spent will be a recreation. It is the little matters of detail that count so much, the one way or the other, in the general appearance of a home. Be neat around as well as in the house for its own sake.

Home-Made Feather Duster.

A Feather Duster is an article, the convenience of which every housewife appreciates, but it is often too expensive for many farmers to buy. For all such, some hints as to how a duster of equal utility and durability to a store one may be made at home from the feathers that would otherwise go to waste, may be useful. If beauty is not sought, any round stick of the proper size, such as the end of a broom handle, will serve for the handle of the brush; if one happens to have an old duster handle that can be used once more. With a saw make a series of grooves or deep notches in the lower end of the handle. By the aid of a hammer the lower portion of each quill should be so flattened as to pass into the grooves. As fast as the feathers are put in they should be tied with strong twine; and as the work proceeds glue should be added, that the feathers may be the more firmly fastened. In this way new rows of feathers, followed by the twine and glue, may be added, until the end is completely covered and the duster is of sufficient size, after which the finishing row of large feathers, selected for the purpose, is placed around the whole, and tightly bound with twine. Outside of the base of this last row of feathers, a neat strip of leather may be glued to both improve the appearance and render the feathers more secure. A brush thus made, will serve all the purposes of a purchased one, and if the work is carefully and thoroughly done, it may present as neat an appearance.

A Cheap Glue Pot.

Glue would be much more largely used in the household when a break occurs in the furniture, and many other articles, if there was an easily worked glue pot at hand. A glue pot need not be expensive, as the one in figure 1 goes to show. Two tin fruit cans—one of the most common things to be found around the house now-a-days—a larger sized one for the water vessel, and a smaller one for the glue, is all that is necessary. The larger can is opened at one end, and the strips of tin turned back to make an opening, into which the smaller one fits closely, as shown in figure 1. The bails are added for convenience in handling, but are not essential to the make-up of the glue pot. A second form is shown in figure 2, in which the same sized cans are used, but the top is entirely removed from the larger one, and the glue can is held up from the bottom by a tripod of twisted wire, passing around the small can just below the rim, the ends resting on the upper edge of the water vessel. This is the extreme of simplicity in a glue pot; but at the same time it is complete. With the two cans and a bit of wire, the construction of this useful household affair is only a matter of a very few minutes. Let us have one.

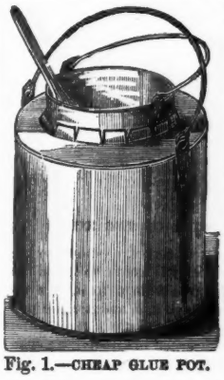


Fig. 1.—CHEAP GLUE POT.

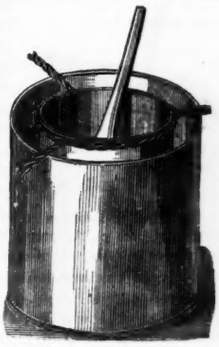


Fig. 2.—GLUE POT WITH WIRE.

BOYS & GIRLS' COLUMNS.

The Doctor's Talks.

Having built our kite, the next thing is to get it up. Before undertaking to fly a kite, be sure that your string is so wound that it will run off without any trouble or hitches; there is always danger of this with a ball of twine, therefore it is always best to have it wound upon a stick, and every boy knows how to do that. Having the tail so wound that it will not get tangled, we go to an open place, where there are no trees, telegraph wires, or anything else in the way, and we are ready

TO FLY THE KITE.

Some boys make a great fuss about throwing up the kite, and think that success depends upon throwing it just at the right time. I don't know how it may be with other kites, but the bow-kite, the only one that I know much about, does not need to be thrown up. Spread out the tail in front of the kite, which has its point on the ground, letting one hold it upright. The string being securely tied to the belly-band, let off several yards of twine, and start and run against the wind, letting off string as you go. With a good kite and a fair breeze, it should go up without any fuss. Then the rest of the twine can be played out. If you run, holding the string from the kite, it will rise higher. If you go towards the kite, thus slackening the string, it will begin to fall.

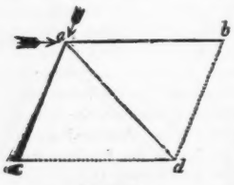


Figure 1.

WHAT MAKES THE KITE GO UP?

We have seen how it goes up, and now wish to know what laws of motion are concerned. Here we must state a law that has not been given in these "Talks." It is this: When a body is acted upon by two equal forces, tending to carry it in different directions, it will take a course intermediate between the two. For example: if

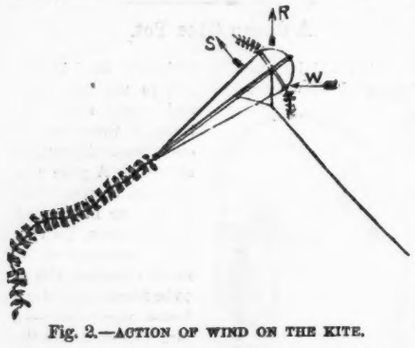


Fig. 2.—ACTION OF WIND ON THE KITE.

a ball was struck by two different forces, as shown by the arrows, fig 1, one tending to carry it from *a* to *b*, and the other from *a* to *c*, it would move from *a* to *d*, in a diagonal of a parallelogram, of which *a*, *b*, and *a*, *c*, are two sides. Now to apply this principle to the kite. In the first place, what forces are concerned in kite-flying? The wind you may think is the only force. But what happens when you go towards the kite? It falls, you know. It is plain that in this case the string is a force. We have then the wind, which tends to carry off the kite in one direction and the string that tends to hold it in another, and between the two forces the kite rises. In the diagram, figure 2, a kite is shown edgewise. The direction

Fig. 3.—AN ANCHOR FERRY.

of the wind is indicated by the arrow, *W*, and the restraining force of the string by *S*. The result of the two forces is in the direction of *R*. Thus we may see that

THE KITE RISES IN THE AIR,

as the result of two forces acting upon it, the wind and the string. The motion resulting from two different forces is made useful in various ways, as is in some kinds of ferries, one of which is shown in figure 3. Here the boat is anchored by means of a long rope. If the boat stood square across the stream, it would remain at rest, but the rope is so attached that it turns obliquely to the stream, the force of which tending in one direction and the rope in the other, the boat takes a direction between the two, and is carried to the other side. I once crossed a ferry in Texas which operated on the same principle. A stout cable was stretched across the river from bank to bank. On this cable ran two pullies, to which smaller ropes were attached, one of these ropes being hitched to the front and the other to the rear end of a large flat-boat. The rope at the rear end being let out, to place the boat obliquely to the cable, the boat was, by the force of the current, slowly carried over to

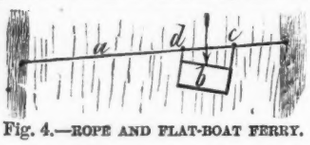


Fig. 4.—ROPE AND FLAT-BOAT FERRY.

the other side. The working of such a ferry is shown in figure 4. The cable or strong wire, *a*, stretches between the two banks, the flat-boat or scow, *b*, is fastened by ropes to the pulleys, *c*, and *d*, which run along upon the cable. If the rope at one end is let out, so as to allow the boat to stand obliquely across the stream, the force of the current will carry it across. To return, the rear rope has only to be shortened and the other let out, to reverse the position, and the boat will go across in the other direction.

The Baby Elephant.

We remember the first elephant we ever saw. Though we were but a boy of seven years, the day that we saw this great animal is fresh in the memory, and like the same event in the early life of thousands of children, it will never grow dim. There is something about an elephant that is impressive, and when you add to that the fact that a man sat on the elephant's tusks and put his head right into its mouth, the sight becomes so terribly new, that one does not forget it. But all great, big, strong elephants were once small—if elephants can be said to be small—and have their days of helpless infancy. Such a little baby elephant has recently been born in Philadelphia, and it is the first one that is known to have been born in the United States. This is not the native home of the elephant, and when brought here it is only for the purpose of helping to make up a show of wild animals. In the wilds of Africa, baby elephants are common; and they are usually taken from their wild state while quite young. The little new comer is the offspring of "Mandrie," the father elephant, who is 26 years old and weighs 8,000 pounds, and "Hebe," the mother, 23 years old and weighing 7,020 pounds. The calf at birth weighed 213½ pounds, and stood about three feet high. The birth of the elephant babe was the occasion of great excitement among the other animals of the menagerie, and the mother became so alarmed at the roaring of the lions and the noise of the tigers, etc., that she rolled over violently on the ground and did all in her power to protect her calf from supposed danger. She is so fond of her little one that she is extremely jealous of strangers, and will not allow her old pet dogs to come near her. The little elephant is very friendly to visitors, poking its slender trunk into pockets and up sleeves, to the delight of all. The other elephants of the herd caress it fondly, which flatters the proud mother of the first genuine baby elephant of the United States.

Farming in Connecticut.

BY G. H. "AND THREE OTHER BOYS."

The great number of run-down or half-worked farms in old Connecticut now offered for sale would make it an inducement for any person who cares for some independence to try to become the owner of one, as many of them can be bought for less than the buildings on them are worth. Knowing this, we concluded to have a little actual experience in the matter. We have now been on this farm one year. We came from the City, and were rather obliged to come, so as to get something to live on, as we were out of business and about out of money. The man of whom we got the farm did but little on it, and many of the lots were full of weeds and briers. He had less than two acres planted, so the farm had not been made poor by plowing. Most of the land was in good condition, but needed working and seeding. We have tried a variety of crops. We plowed four acres once, but plowed it well, then harrowed and sowed it with buckwheat, harrowing in the seed, and we had fifty bushels, though we used no manure.

When we first commenced to plow in the spring for corn, we had a pair of horses that went so fast that we could hardly keep up with them, and so we plowed wide furrows to finish as soon as we could, and we had a big job in hoeing, but we dug and worked and got a good crop of corn. We use oxen now, as we like them better in this heavy soil than the horses, which are mostly used here. We raised some potatoes, enough to eat and for seed, and they are good ones. We planted in the furrow, as most of the farmers do here, that is, turn over the land, harrow, furrow out, drop in the furrow, and cover with the plow. We had the best potatoes on turf land used in that way. This year we are going to ridge up some corn land, and try some potatoes in that way. We planted some peas, and had an abundance of fresh sweet ones to eat, not much like those had in the city. This winter we have got out a big lot of pea-brush, and are going to put in several bushels, as the boys intend to sell some (we mean three boys and one man). Before we came here a part of the garden had been mowed, the weeds were so big, but we manured it well, plowed deep, and planted in rows 3 feet apart, and then we cultivated and hoed until we had no weeds, but such a crop of vegetables as this old garden never raised before, enough for us and the neighbors, and such lettuce, cucumbers, tomatoes, beans, beets, sweet corn, parsnips, cabbage, etc., etc.! We have enlarged the garden, and intend to plant some small fruits—strawberries, raspberries, etc., as it takes more time to hunt up the poor ones in the lots than it will to have them handy when wanted; and then the sight of them when growing is about as good as the eating. We are also going to set some small fruits in the field, and mean to have some to sell, as there are several good markets near, and the boys prove to be very good peddlers. On some turf land turned over and harrowed, we raised several hundred bushels of hard or Swedish turnips, some we sold, and we are now feeding the rest of them to the cattle, without cutting—it takes them longer to eat them, but they never get choked. We raised some cabbages and covered them in furrows in the field, and they kept well and sell quick, and we shall set a large piece of them this year. Our corn we cut up at the bottom, and it is fun for the boys to run it through the feed cutter. We started a manure heap after Harris' method, and have kept up a good heat all winter, and we have a big pile of it now for corn and other crops. We have sown a piece of winter wheat, and several acres of rye, and both look well. We have plowed since March came in, and shall try some fertilizers this year. We have a good flock of hens, and fresh eggs are very handy and good, both to eat and to exchange for groceries, and we are going to see if ninety acres of run-down land will not support three girls and four boys in old Connecticut.

Our Puzzle-Box.

NUMERICAL ENIGMA.

I am composed of 29 letters:
My 24, 9, 18, 15, was an eminent Geologist.
My 6, 17, 21, 2, was an ancient Patriarch.
My 15, 4, 17, 28, is one of the heavenly orbs.
My 25, 16, 9, is a woman's name.
My 4, 27, 24, 7, was an ancient city of Asia Minor.
My 24, 29, 22, 1, 21, is the name of a Greek letter.
My 19, 5, 28, existing from eternity.
My 23, 3, 26, 29, expresses a numeral.
My 11, 10, 13, 1, 7, is a musical instrument.
My 20, 21, 12, is an exclamation denoting surprise or joy.
My 8 you will find in Joshua.
My whole is a quotation from Dryden.

HERA OLEA PHAROS.

ANAGRAMS.

1. Ruin at last.
2. Shan't miss tape.
3. Saul got lace.
4. O yes! grunt.
5. Do rub seven.
6. Decent shrews.
7. Give a net.
8. Second credit.
9. Need my ax.
10. Very idle.

CHANGES.

(Fill the following blanks with words pronounced alike, but of different meanings.—*Example.* She——the child to the store with one——. *Sent, cent.*

1. The——was found taking the——.
2. The——walked back and forth on the——for exercise.
3. ——very often decorates——.
4. Her——tried to——her.
5. She——him——the child.
6. I can——loosen that——.

TRANSPOSITIONS.

1. Transpose a fish into a verb.
2. A woman into a verb.
3. Some real estate into a verb.
4. A small animal into a verb.
5. An article of apparel into a verb.
6. An insect into a verb.

(Each of the six is a word of four letters.)

ALPHABETICAL ARITHMETIC.

W H N C) S N F D O H I E) W H C C D
S H C E
N W C O H
N E H O D
N W S C I
N E H O D
N I S E E
N I H I C
I W I

ANIMALS ENIGMATICALLY EXPRESSED.

1. Part of a vessel, an exclamation and a title.
2. An animal, an article, and a mass of earth.
3. Part of the body, an unpleasant sensation, and an article.
4. Part of the body, a river, a kitchen utensil, an article, and a confession.
5. A vessel, an article, and the head of a river.
6. A title and an instrument.
7. A sign and a consonant.
8. A verb and a preposition.

HALF SQUARE.

1. A famous valley.
2. Name of three towns in Italy.
3. To separate (*vide* Webster).
4. A city in Portugal.
5. A river in Liberia.
6. A river in Europe.
7. A preposition.
8. A vowel.

NEMO.

PUZZLE.

Take four-fifths of a dozen, and strange though it seem,
'Tis enough to go all round the earth:
Should you ask me its value, I'm sorry to say
I really don't know what 'tis worth.

COUNTIES IN GEORGIA ENIGMATICALLY EXPRESSED.

1. Something constantly sought, and a weight.
2. Something that one hears less of in February than in any other month, and part of an animal.
3. Something we have been recommended not to get into, and cunning.
4. A military term, and what many of us do not like to hear in the early morning.
5. The remark that sometimes follows the above disagreeable sound.
6. A vehicle and a list of names.
7. Part of a bird, and part of a river.
8. What none wish to be, and what all wish to do.

CONCEALED NAMES OF POETS.

1. Bob, row nearer to the shore.
2. I can't Mac. O keep still! there's a duck.
3. It is a cow, perhaps.
4. Is this cottage for sale, I wonder?
5. Would you call that dog a yellow one?
6. Sit down on that log and wait for me.
7. Under the willow, Ella.
8. I shall stay until you return.

DECAPITATION.

Entire I am a certain movement of an army, behead me and you may sometimes see me under a bridge. Transpose the last and I burn. Transpose the whole and I delight; now behead me and I do mischief; once more behead me and you may see the very thing that did the damage; transpose this and see more harm.

SCATTERED SQUARE WORDS.

Find more than five square words in the well-known stanza.

"Little Bo-peep has lost her sheep
And doesn't know where to find them;
Let them alone, they're sure to come home,
With all their tails behind them."

(From the letters in the first line you may make such words as POST, BALE, SORT, BEAT, and others; from the letters of the second line may be made other words of four letters, and so with the third and fourth lines. The first word of the "square" must be found in the first line of the stanza, the second word in the second line, the third word in the third line, and the fourth word in the fourth line. You must have, at least, two new words in each square.)

DOUBLE ACROSTIC.

1. A common exclamation.
2. A mason's tool.
3. Part of a ship.
4. A precious stone.
5. A French coin.

The primals and finals name an American officer of the Revolutionary war. ISOLA.

CROSS-WORD.

My first is in coffee but not in tea,
My next is in river but not in sea,
My third is in finger but not in thumb,
My fourth is in apple but not in plum,
My fifth is in pantry but not in shelf,
My sixth is in plunder but not in pelf,
My seventh is in swoon but not in faint,
My eighth is in varnish but not in paint,
My ninth is in swim but not in float,
My tenth is in ship but not in boat:
Life were sad without my whole,
It comforts many a weary soul.

ANSWERS TO PUZZLES IN THE APRIL NUMBER.

WORD-MAKING PUZZLE.—1. Add the letter U, to the word "engine," transpose into "genuine." 2. Shirt, thirst. 3. Dread, madder. 4. Love, novel. 5. Tale, valet. 6. Perusal, pleasure. 7. Cant, antic. 8. Suet, upset.

CROSS-WORD.—Frontispiece.

NUMERICAL ENIGMAS.—1. Threshing machine.—2. Local option.

ANAGRAMS.		SQUARE WORD.
1. Waylaid.	6. Leniency.	D A V I S
2. Mullein.	7. Interpolate.	A B I D E
3. Doughnuts.	8. Abeyance.	V I O L A
4. Castaway.	9. Unalloyed.	I D L E R
5. Beforehand.	10. Partisan.	S E A R S

CONCEALED INSECTS.—1. Gnat. 2. Bug. 3. Ant. 4. Grub 5. Fly.

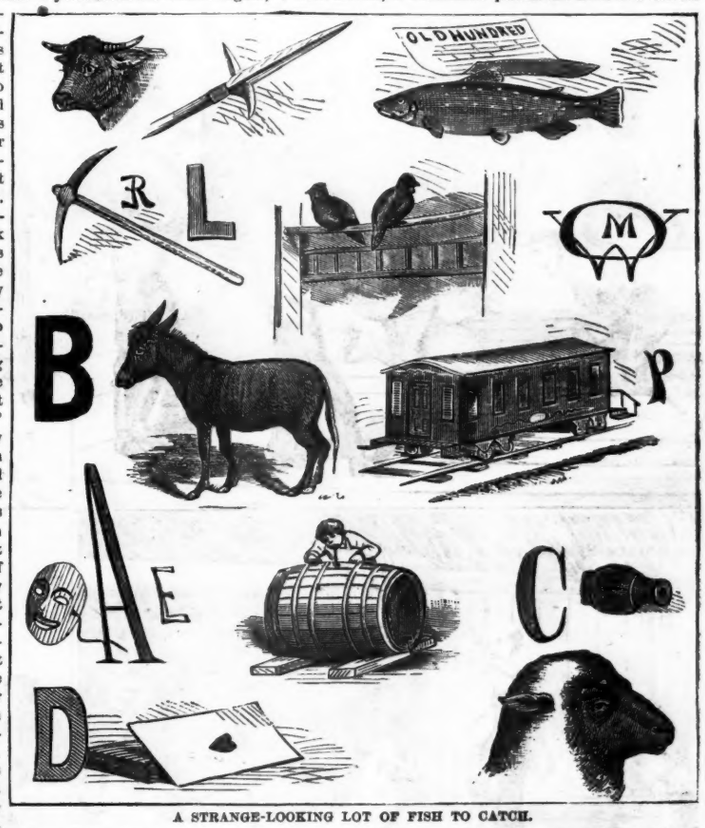
PI.—The Royal Library of Paris contains two million volumes and objects of every description. The regular annual increase is twenty thousand. Nearly half a million books are French history, only twenty thousand English history; theology numbers 200,000, and in science and philosophy there are ninety thousand volumes. Printed, systematic catalogues furnished.

ILLUSTRATED RIEBUS, No. 475.—Experience increases our wisdom, but don't reduce our follies.

No. 477. Illustrated Rebus.—A truth that is easier to work out in a rebus like this than to keep constantly in view in every-day life.

A New Kind of Fishing.

Last month, the boys and girls will remember, we had a sort of a fish story, but we had but very little to say about the kinds of fish that were caught. In the accompanying picture—which we will imagine is a lake, or even an ocean—there are ten different kinds of fish. It is our work to help the readers catch these members of the finny tribe—in other words, to *get them out* by hook or crook, or any other way. Let us begin with the smallest, though not the least important, as many an old fisherman will say, and with it as a sort of bait—it is frequently used as such—try and catch the others. Again, we should first capture this little fellow, because boys and girls are most accustomed to catching them, and that too in ponds too small for larger fish to live in.—No. 2 is a fish that is very fond of No. 1. It is scarcely necessary to remark that this fish is larger than the one we have already caught, and put upon the hook—so to speak—for the second. This fishing is on the principle that "big fish eat up the little ones." The one we are now after is olive-green on the back and nearly white on the underside, and is about a foot in length. The most common method of catching it is by trolling—the bait being kept in motion by a slow rowing of the boat. It is common, and the favorite fish for catching, in such large lakes as Champlain, George, etc. Lake Erie abounds in them.—No. 3 is a common freshwater fish, varying greatly in size, but usually not over a foot in length. It differs from most fish found in the same places, in having no scales; it has a head of great size as compared with the body, and peculiar soft horns around the mouth, and stiff spines on the fins that have hurt many a young fisherman. For catching this fish you need a great, big bit of bait, as a piece of meat, to which more than one fish may fasten itself and be brought in. They have very few bones, and are good eating besides.—No. 4 is a long slender fish, with a head and mouth in shape resembling that of a duck. It is too large to be caught by the ordinary method of fishing with a still hook baited with a worm. It is so fond of small fish that it will quickly take one even when a hook is fastened in the little fellow's back.—No. 5 so much resembles the one just mentioned that it is placed in the same family. Fishes, like other animals, have their first, second, and third cousins, etc. No 5 is a noted fish; fine both for food and the sport there is in catching it. Some fish go in schools; this one keeps out of them, and is usually found alone. Other fish avoid it, for to be near it may mean sudden death. This fish is fond of shady places among the grass in fresh water streams. Trolling for this fish in the biting season—the spring—is very exciting, and much loved by sporting fishers. A number of rules must be observed in safely landing one of these long, slender, greenish fish. When once safely on the hook, do not be in a hurry to get him out of the water.—No. 6 is probably the most common fish in the lakes, large and small, throughout the country. It is generally small, weighing from a half to three-quarters of a pound. The head is small and tapering; back olive-brown, sides belted with yellow, white underneath. The usual bait is the angle worm. They may be caught at all seasons of the year. On account of the spiny back fin, this fish is not so largely eaten by the "big fish."—No. 7, as the fishermen say, "don't bite," and if caught at all must be in a net or with a spear. It is the habit of this fish to run up small streams in the spring to spawn—that is, lay their eggs—and return to the lakes for the rest of the season. While in the shallow streams they are often speared in great numbers, especially at night, when a torch or large lantern is used to furnish light.—No. 8 is a large fish, growing from one to over three feet in length, and from five to seventy-five pounds in weight. It's name is correspondingly long, and spelled in a dozen or more ways. Nos. 8 and 5 are much alike, and are to be caught in the same way. The Indians have told some wonderful stories about this fish, only equalled by those of the white-faced explorers of the northern lakes and rivers, where it abounds.—No. 9. We must go to the ocean, or at least, salt water, for this fish. The form of the face, which is somewhat smutty, is supposed to resemble that of a sheep, as also do the teeth. A clam, shell and all, is sometimes put on the hook as a bait for this fish.—No. 10. A common small and exceedingly shy fish. The head is large, back greenish, sides silvery. Frequently taken through the ice in winter with hooks baited with cheese. The same name is unfortunately given to a number of kinds of fish.—No. 11 is found in the deep clear water of quiet streams. A very lively fish, moving in shoals or schools. It seldom exceeds a pound in weight. A "horned" variety is common in many streams, the head having spiny projections upon it.—No. 12. One of the oldest of the historical food fish, and one that is now being introduced into cultivation from Germany by our Government. No fish, excepting the gold fish, has been so extensively transported and grown in artificial ponds and lakes as this.—No. 13 is the last and the best of the list as a food fish. The flesh is reddish in color; the sides are sprinkled with spots. A large fish, from two to five feet in length, and inhabiting rivers, the Great Lakes and many smaller ones.



A STRANGE-LOOKING LOT OF FISH TO CATCH.

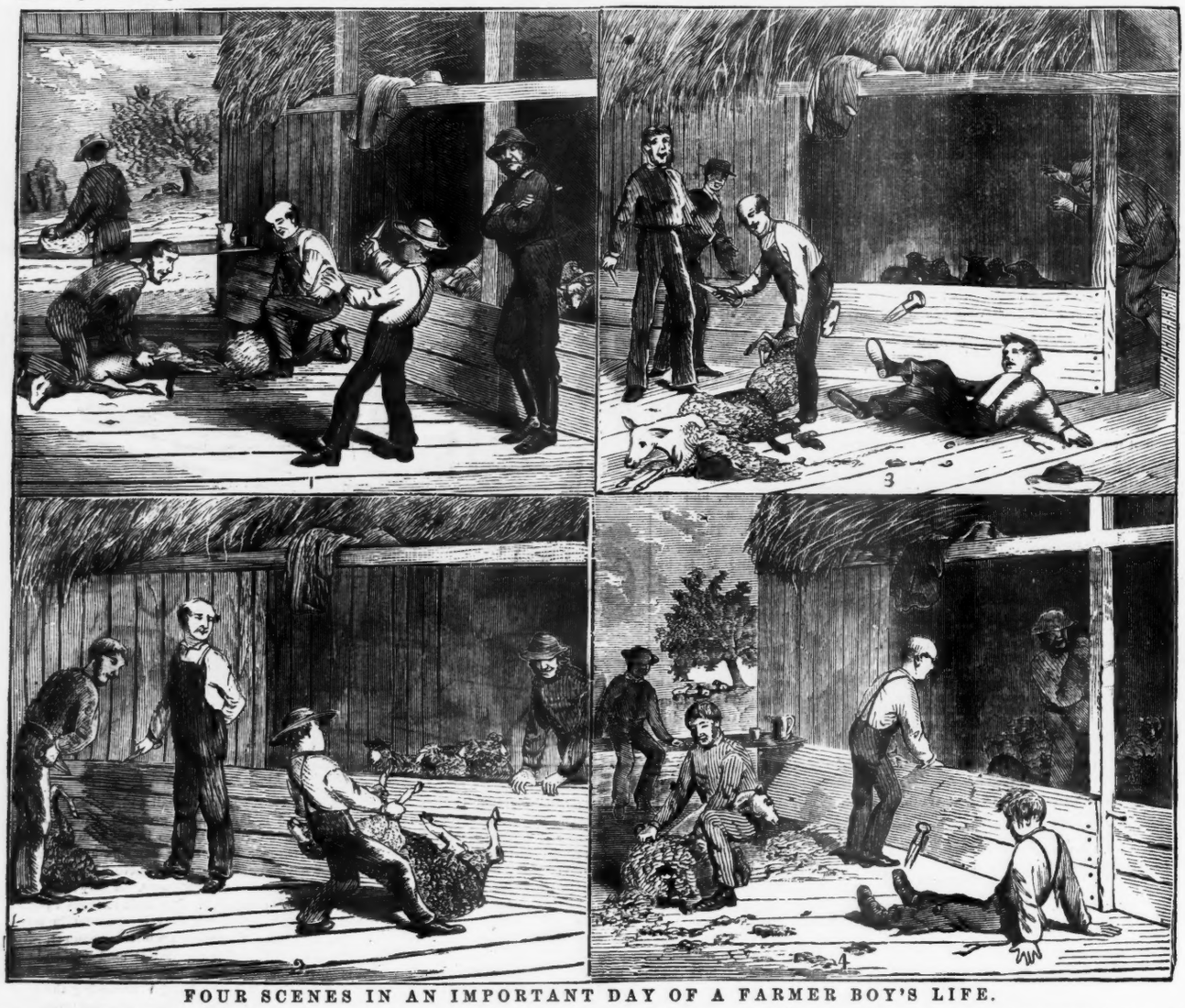
A Small Boy's Essay on Corn.

Some smart boy has been sitting up late nights when all the rest of the family thought him sound asleep and has produced an essay on corn, from which we take a few extracts: "Corns are of two kinds—vegetable and animal. Vegetable corns grow in rows; animal corn grows on toes....It is said that gophers like corns; but persons having corns do not like to "go fur" if they can help it. Corns have kernels, and some Colonels have corns....Another kind of corn is the acorn; this kind grows on oaks; but there is no *hoax* about the corn..... Folks that have corns sometimes send for the doctor, and if the doctor himself is corned, he probably wont do so well as if he isn't. The doctors say that corns are produced by tight boots and shoes, which is probably the reason why, when a man is tight, they say he is corned." There is a considerable more of this essay, but we have only selected enough to show that the lad has a corner on the corn question, and has doubtless been feeding on corn cakes, corn dodgers, etc., or reading about that fabulous horse-like animal with a single horn—the unicorn.

Shearing His First Sheep.

There are certain things in the life of the farmer boy that are events in his existence: places in his pathway up to manhood which, when passed, mark his progress. Just as in a school there are examinations through which the scholar must pass, so on the farm, there are practical tests to be applied to determine the ability and strength of the aspiring youth. In those places where wool-growing is an important feature of the farm, the shearing of his first sheep is an accomplishment to which the boy looks forward as a sort of line which divides the youth from the man. Were it not for a seeming selfishness I would relate my first experience in this matter; but will step aside and let a near neighbor, Samuel Brown—"Sammy" we called him—be the hero of the story. Sammy was a boy with large ideas. He liked to do great things, or at least was fond of talking of the wonderful things he would do some day. I like all this in boys if it does not make them dizzy—does not make them think they are wiser and bigger than they really are—does not make them at a rather early age think what they do not know is not of any very great importance. Failures in all ages of life have their good lessons, but perhaps at no time do they teach so much as in youth. Sammy, to use a homely expression, was "growing very fast," and talked—and that boastfully, of his ability to do great things. And now for the sheep-shearing trials of Master Brown.

The artist has helped to make the matter plain with a series of four illustrations, showing as many different stages in the progress of the work—for it was work. In the upper left-hand corner we have a familiar scene on many a barn-floor in June. The shearers are at work busily taking the coat of a year's growth from the sheep, some of which may have become used to the uncomfortable situation through the experience of former years, while others find it a new and unenjoyable process through which they are forced to pass. Sheep-shearing, though done by the kindest and best shearers, is not altogether pleasant for the sheep; but when we remember what a relief it must be to them in the hot weather that follows, they are the gainers after all by the process of losing their wool. Sammy is standing in the foreground and is evidently in the last stages of an animated speech in favor of his own ability to shear a sheep—a statement which the other shearers are not quick to accept. With a flourish of the shears, which he has selected for his work, he loudly declares his intentions, and the older and wiser heads, seeing that persuasion is of no use, give each other the wink, and the youth, aspiring for honors at the point of the shears, boastfully selects out his "victim" from the flock. The next scene lets us into the struggles which Master Brown experiences in bringing his sheep to the proper place upon the floor. Sheep, as well as other animals, are more powerful and less easily controlled sometimes than it would at first sight appear—and it is on this account that some of the most important instruction—the most useful knowledge—comes from personal contact—a grappling with the subject. The young shearer was, even in this stage of the shearing process, gaining a knowledge of the strength of sheep muscle, guided by a stubborn sheep's will, that he never had before. Under the circumstances it would not be expected that Sammy would receive any assistance from the men, so long as it was so loudly and boastfully disclaimed but a few moments before. From the third picture it is evident that the unwilling sheep was finally brought to a convenient place for shearing, and the process of unrobing the frightened animal was began, doubtless under a number of serious difficulties which Samuel never before saw in their true light. "A looker on may see most of the game," but it is one thing to *see* and another to *play* the game. The process of sheep shearing had been observed so many times that the youth felt he knew it all, and had not been slow to make the feeling known. Of course the artist cannot represent and do full justice to the kicking and pulling and squirming on the part of the unfortunate sheep, and the sweating and struggling of the still more unfortunate boy; but he has shown how matters shaped themselves in that final contest for freedom when the "victim" became the victor, and the young shearer literally took a back seat upon the floor. It was a hard struggle,—a battle,—in which the odds were against the boy; a conflict of muscle in which the weakest went to the wall, and the strongest to the open yard, dragging what little wool with him that the ill-guided shears had imperfectly clipped from his much-cut skin. The fourth and last scene speaks for itself. The men, with a sense of mingled mirth and pity, appreciate the miserable state of mind and body of the beaten boy as he sits in sadness and silence, and watches without a word the easy stroke of the skilled shearer as he finishes the sheep that would not be sheared by a boy.



FOUR SCENES IN AN IMPORTANT DAY OF A FARMER BOY'S LIFE.

This account of Master Brown's trouble may seem hard on the boys; but there is a lesson in it, and that is just the reason why I tell it to the many boys—and it may not hurt the girls—of the *American Agriculturist* family. Sammy was made better by his unsuccessful attempt to shear a sheep before he was old enough to hold one. The experiment was a great success, because it taught him his strength and his place in the distribution of farm labor. I have been a boy, and, just like the great mass of them, and I know that when a boy gets above his work, he must come down, and the higher he gets the greater the fall must be. I could plow as well as the hired man until—the plow struck that stone. Don't I remember it well! and then I could do little else than cry. The desire to rise to the dignity and strength of manhood is worthy of only the highest praise—and every effort should point in that direction. It is only when the youth over-estimates his powers, and that to the annoyance of those of whom he might, but will not, learn, that the experience of Sammy will come. Sammy got a great deal that was of value to him out of his sheep shearing struggle. In some shape or other we all try to shear our first sheep.

UNCLE HAL.

GOOD FERTILIZERS.

We have again and again advised the farmers of the country to make a more liberal use of standard fertilizers if they would expect to increase their crops. Those who have experimented judiciously in this direction have seen no reason whatever to regret it. The foreign demand for our cereals seems likely to increase year by year. Business is recovering in all parts of the world, and, whether the nations are at peace or not, there will, in all probability, be a steadily increasing demand for our breadstuffs. In some sections of the country farmers are straining every nerve to increase their productions. They seek the best fertilizers, the best labor-saving machinery, and the best information they can get to help them in their special vocation; and during the next decade we predict that those who skillfully till the soil will do the best and safest business in the country. There are many kinds of good fertilizers—many kinds which are known to be exactly what are wanted by all farmers. We have recently taken special pains to inquire about the Michigan Carbon Works, at Detroit. This concern has an honorable standing and record. It is responsible and its statements are reliable. Its managers are well-known business men, and what they say they mean. We believe they are making a first-rate fertilizer, and that its general use would be a great benefit to the public. We advise all our readers who are interested in the matter to address the Company for further and full particulars in regard to what they specially offer.—*N. Y. Independent.*

Organs and Pianos.

The Hon. DANIEL F. BEATTY, of Washington, New Jersey, comes to the front with what he considers the greatest offer ever made on first-class Pianos and Organs. A fairer or more liberal offer was never made, for, if in any particular the description of instrument differs from the advertisement, Mayor BEATTY will take it back and pay all freight charges both ways. As an evidence of his immense popularity among those who know him best, we mention the fact of his re-election last week as Mayor of his city by an overwhelming majority.

Toes Protruding!

Soiled Stockings!

SHOE BILLS DOUBLE IN AMOUNT WHAT THEY NEED BE.

All these ills prevented by purchasing for children's wear either the A.S.T.Co

BEAUTIFUL BLACK or SILVER

TIPPED SHOES.

MISS MARIA RITTER,

NEW YORK SHOPPING AGENT,

Purchases articles of Dry-goods, Jewelry, Books, Silver, Bric-a-Brac, or anything required for personal or household use. Unquestionable references. For Circular address

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Eye-Glass Holder.

Just the thing to save your glasses and make them handy! Pins right on your vest, and stops just when you want it to. By mail, 25 cts. Circulars free. Agents wanted.

J. S. BIRCH & CO.,
38 Dey St., N. Y.

THE

AMERICAN SUBMERGED PUMP

IS A DOUBLE-ACTING, NON-FREEZING

FORCE-PUMP.

Will draw water from 1 to 100 feet, with one-man power, and also force water to any required distance.

Prices, complete,

$15 to $75.

RUBBER HOSE,

For Garden Purposes, at manufacturer's prices.

Wakefield, Perfection, and Peerless

EARTH CLOSETS

Are the Best. Prices, $6.50 to $40.

Address

HENRY H. B. BLOOMFIELD,
34 DEY STREET, N. Y.

NEEDLES

Male and Female Agents wanted to sell our FAMILY NEEDLE PACKAGE, containing 120-Large-eyed English Needles, as follows: Four papers, 25 in each, different sizes; also, two steel Bodkins, 3 Long Cotton Darners, 2 Short Cotton Darners, 2 extra fine Cotton Darners, 2 Wool, 2 Yarn, 1 Worsted, 1 Motto, 2 Carpet, and 3 Shoe-Button Needles. The above are required in every family. Agents' Circulars free. **Send 25c. in postage stamps for full sample package.**

LONDON NEEDLE CO.,
24 and 26 Fourth Avenue, New York.

1880 Established 34 Years. 1880

Both designs on each label.

Saleratus the same.

NONE BETTER MADE! TRY IT!

Office, 11 Old Slip, New York. Factories, Harlem.

H.W. JOHNS' ASBESTOS

Liquid Paints.

are strictly pure linseed-oil paints of a higher grade than have ever before been manufactured for structural purposes.

A saving of 25 to 33 per cent of customary outlays can be effected by the use of these paints. Samples of sixteen newest shades for dwellings sent free by mail.

Be sure and get the *Genuine*, which are manufactured only by

H. W. JOHNS' M'F'G CO.,

87 Maiden-Lane, New York.

Sole Manufacturers of Genuine

ASBESTOS ROOFING, BOILER COVERINGS, &c.

☞ **Descriptive Price Lists free by mail.**

Improvement for 1880.

THE SAFETY HOT BLAST OIL STOVE.

☞ Does not heat the house. Perfect for all kinds of Cooking and Heating Irons. Always ready and reliable. The most satisfactory Stove made and the Cheapest. ☞ Send for circulars.

The Whitney Manuf'g Co.,
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For Washing Windows, Carriages, etc. **Protects Buildings from Fire, and Trees, Vines, etc., from Insects, Potato Bugs and Canker Worms.** No Dwelling, Country Home, or Factory, should be without the Fountain Pump. Send for large Illustrated Circular.

J. A. WHITMAN,
Patentee & Manufacturer, **Providence, R. I.**

ROYAL

BAKING POWDER

Absolutely Pure.

Made from Grape Cream Tartar.—No other preparation makes such light, flaky hot breads, or luxurious pastry. Can be eaten by dyspeptics without fear of the ills resulting from heavy indigestible food.

Sold only in cans, by all Grocers.

ROYAL BAKING POWDER CO., New York.

MINNESOTA CHIEF

BEST THRESHER ON WHEELS

Is not a Vibrator nor an Apron Machine. Is wonderfully simple and admirably perfect in its threshing and separating qualities. **Saves all the grain, and cleans it ready for market.** Runs easily, is constructed durably, is finished beautifully, is the most economical, least expensive, and **most satisfactory machine in the market.** Will handle wet grain as well as dry. Has no equal in threshing flax and timothy, threshing and cleaning both as well and nearly as rapidly as wheat, and requires no change except the sieves. *Has more square feet of separating and cleaning surface than any other machine made, and can not be overloaded.* Is both over- and under-blast. Our **CLOVER HULLING ATTACHMENT** is new and very desirable. Does the work more rapidly and better than an exclusively Hulling Machine.

SEPARATORS of the various sizes *fitted for Steam or Horse Power*, as desired.

An **Improved Pitts Power**, an **Improved Woodbury Power**, and the **Reward Equalizing Power**, all mounted on four wheels, are manufactured by us, *and are not surpassed by any in the market.*

We are also prepared to furnish **first-class Portable Engines** with our Separators.

For Price-List and Circulars, address

SEYMOUR, SABIN & CO.
Manufacturers, Stillwater, Minn.

RIDGE'S FOOD for INFANTS AND INVALIDS

Has been manufactured in this country for ten years, and all orders for both the United States and Canadas are filled by WOOLRICH & CO., whose name appears on every label. It is not, therefore, an imported article. Its use, however, for 20 years in England and 10 years in America shows its standard worth. Ridge's Food is NOT a medicine, but a highly nutritious and because a COOKED FOOD, easily assimilated. Take no new untried preparation because offered at a cheap price, when Ridge's Food can be obtained from all Druggists at 35 cents and upwards.

A New Early Sweet Potato,
EARLY GOLDEN.

This variety originated in Virginia a few years since, by an old cultivator of the Sweet Potato. It is a sport of the old **Early Red,** but said to be far superior to that variety in earliness, productiveness, color, and quality. Slips planted May 10th, produced tubers large enough for the market July 25th. On account of its early maturity it is believed to be better adapted for cultivation in the Northern States than any other variety. In shape they are somewhat shorter than the ordinary varieties, of a golden yellow color, cook very dry, and are of superior flavor. Another valuable consideration in favor of this variety is, that they will grow on quite ordinary soil with but a slight coat of manure, and yielded a large crop the past season upon land that would not grow above fifteen bushels of corn to the acre. In good soil they will produce many specimens weighing three to five pounds each. It is also an excellent keeper. From what we can learn from those who have tested this variety, we think it will prove the most valuable in cultivation.

Price of slips, with directions for planting, by mail, postpaid, 50 cents per dozen; $1.25 for fifty; $2.00 per hundred. By express at purchaser's expense, $1.50 per hundred, $12.50 per thousand.

B. K. BLISS & SONS, 34 Barclay St., N. Y.

STRAWBERRIES.

Pot Grown plants of the best Old and New varieties, including Sharpless, Crystal City, and Glendale, ready in July. Catalogue free. J. L. DILLON, Bloomsburg, Pa.

CUTHBERT RASPBERRY.

Green Plants (which will produce a crop of fruit next year) carefully packed in damp moss, at $3.00 per 100; $20.00 per 1,000. **J. T. LOVETT,**
Little Silver, Monmouth Co., N. J.

PURE FRESH **SEEDS** **CABBAGE** HEALTHY RELIABLE **PLANTS**

Also CELERY. Best and Cheapest in America. Millions of Plants. Catalogue free. I. F. TILLINGHAST, La Plume, Pa.

Plants By Mail.

Roses, Geraniums, Fuchsias, etc.

10 Choice Varieties, labeled, for $1.00.
15 " " not labeled, " 1.00.

Sent safely, post-paid. Price list free.
L. S. HALLOCK, Orange, N. J.

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BEAUTIFUL EVER-BLOOMING
ROSES
THE BEST IN THE WORLD.

Our **Great Specialty** is *growing* and *distributing* these **Beautiful Roses.** *We deliver* **Strong Pot Plants,** suitable for *immediate* bloom, *safely by mail* at all postoffices. **5 Splendid Varieties,** *your choice,* all labeled, for **$1; 12** for **$2; 19** for **$3; 26** for **$4; 35** for **$5; 75** for **$10; 100** for **$13.** Send for our **New Guide to Rose Culture** (60 pp. elegantly illustrated) and *choose* from over **Five Hundred Finest Sorts.** Address
THE DINGEE & CONARD CO.,
Rose Growers, West Grove, Chester Co., Pa.

For Export--Fall Delivery.

OFFERS FOR
FIELD, VEGETABLE, AND FLOWER SEEDS,
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FRUIT TREES, Principally APPLE AND PEAR,
Freight to New York included, solicited by
THEODORE SCHUSTER,
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ALL THE CHOICE NEW SORTS.
POT GROWN
STRAWBERRY PLANTS
ALSO COMMON GROUND LAYERS.
A pamphlet telling what varieties to plant and how to plant them, together with all needed information, FREE TO ALL.
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POT GROWN Strawberry Plants.

All the new choice and standard kinds in large quantity, at very reasonable rates. Plants set in July produce a fine crop the following season. Descriptive Catalogue free to all applicants.

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STRAWBERRY HULLER. By mail, 10 cts. each; 3 for 25 cts.
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100,000 CABBAGE PLANTS, 75,000 Celery, at very low rates.
Send for a circular of Prices before ordering.
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CELERY,
CABBAGE and CAULIFLOWER
PLANTS
All of our own raising, in splendid condition, and at very low rates. Price List, including *Instructions for Culture,* and list of *Seasonable Seeds,* sent free.
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will be ready Feb. 1st, with a colored plate.—It is full in really good and beautiful plants.—New Dracænas, New Crotons, New Pelargoniums, New Roses; Geraniums, Clematises, &c., with a rich collection of Fine Foliage and other Greenhouse and Hot-house plants, well grown and at low prices; Free to all my customers, to others 10 cts., or a plain copy free. Catalogue of Seeds and Roses free.
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Cheap Gift Packages.
BERRY BOXES
AND
PEACHBASKETS.
Send for Price List.
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St. Joseph, Mich.

BEAUTIFUL FLOWERS
A GREEN-HOUSE AT YOUR DOOR

We will send free by mail, and guarantee their safe arrival in **Good Condition,** *our choice*

10 ROSES	10 sorts,	$1
20 VERBENAS	20 "	1
15 Basket *or* **Bedding Plants**	15 "	1
10 GERANIUMS	10 "	1
10 CARNATIONS	10 "	1
10 Tuberoses, *all double*		1
12 Gladioli, *all Flowering Bulbs*		1
2 Camellias, 2 Japonicas *and* **2 Azaleas,**		1

Hundreds *of others—* **NEW AND RARE!**
CHEAP, *and many*
For your choice of varieties, see **our 72-page Catalogue, free.** Also **an immense stock** of *Fruit and Ornamental Trees, Evergreens, Small Fruits, Shrubs,* etc.

6 Hardy Flowering Shrubs	6 sorts,	$1
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25 Raspberry Plants	25 "	1
75 Strawberry Plants	75 "	1
8 Grape Vines	8 "	1
40 Sweet Chestnut *or* **100 Catalpa Trees.**		$1

27th Year. **15** *Greenhouses:* **400** *Acres.*
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TREES and SHRUBS.
BUTTERNUT TREES of all sizes.
A general assortment of
EVERGREENS.
Including the best stock in the country of the **JAPAN GOLDEN RETINISPORA.**
(Retinispora Aurea.)
Catalogues free.
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ASK YOUR MERCHANT FOR
LANDRETHS' GARDEN SEEDS.

They are **NOT** sent out all over the country to be sold on **commission.**
They are **NOT** put up in **Fancy Picture Papers,** illustrating improbable vegetables.
They are **NOT** to be found for sale in grog shops.
They **ARE** grown by the Subscribers on their own **farms** in Pennsylvania, Virginia, New Jersey, and Wisconsin.
They **ARE** put up in plain paper, at the lowest cost. The purchaser, therefore, pays for **seed** and not for fancy paper and printing.
They **ARE** sold by **respectable** Merchants, Druggists, Grocers, etc., **who buy them outright,** because they know **they will prove satisfactory to their customers.**
They **ARE** to be had in any quantity in papers—in ¼ lb. packages, in pints of Peas, Beans, and Corn, or in Bulk.
If your Merchant does not keep them, send for Landreths' Rural Register and Almanac, containing catalogue and prices, and order them direct from headquarters.

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[In writing to Landreth & Sons, please mention this paper.]

LEWIS'S IMPROVED POPATO BUG EXTERMINATOR
AND AGRICULTURAL SYRINGE.

Price, $1.25, Post-paid. Polished Brass, $1.75, Post-paid.

New Improvements for 1880. 10,000 sold in five months. One firm orders **over 1,400 in three weeks.** The fastest selling article in the U. S. My agents are making as high as $22.50 in a single day. As a Potato Bug Exterminator I *challenge the world* for its equal in the saving of *time, labor,* or material. A light tap on handle discharges 3,000 to 5,000 fine drops on each hill as fast as you can walk. ¼ to ½ lb. of London Purple or Paris Green will give an acre three separate dressings. For syringing fruit trees infested with Canker Worms or insects of any kind, it has **no equal.** Agents make $8 to $15 per day anywhere. Read displayed advertisement in April No. of *Agriculturist* of Lewis's Combination Force Pump, on page 164. Price List, Testimonials, and Terms to Agents free on application to
P. C. LEWIS, Catskill, N. Y.

POTATO BUG. COTTON WORM. CANKER WORM.
THE BEST INSECTICIDE EVER USED. # London Purple. **(Trade Mark.)**

Sold by all Wholesale Druggists and Stores throughout the United States. If not obtainable of nearest dealer, send direct to sole manufacturers,
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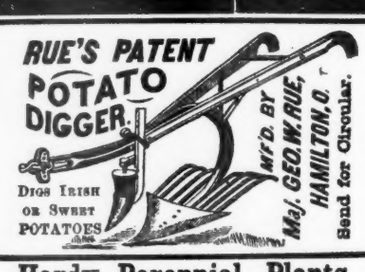

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Are increasing in popularity, because they are
Hardy, their roots living through the winter—and
Perennial, appearing year after year in the same place.
They include the most beautiful kinds that bloom all through the season, from earliest spring to latest fall.

Send for free descriptive Catalogue of the largest collection in the Country—including Hardy Climbers, Flowering Shrubs, Lilies, Phloxes, Ferns, etc. Also choice native plants.

WOOLSON & CO., Box 180, Passaic, N. J.

AHEAD OF ALL COMPETITION!

1880.

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LAWN MOWER.

EIGHT SIZES FOR HAND USE.

Weighing from 22 to 51 lbs.

THREE SIZES FOR HORSE POWER.

The very large increase in our sales last year, prove that these Machines fully sustain the awards **"AS THE BEST"** made to them at the great Centennial **"hundred day trial,"** in Philadelphia, in 1876, and their complete victory at the Paris Exposition in 1878. We offer for 1880, Machines from entirely new patterns and greatly improved in every respect.

Examine our New Lawn Sweepers. Hand or Horse size.

GRAHAM, EMLEN & PASSMORE,
Patentees and Manufacturers,
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Send for Descriptive Catalogue with prices.

EXCELSIOR

LAWN MOWER

HAND AND HORSE.

CROQUET MOWER $12

THREE PATTERNS OF HAND MOWERS 10 TO 20 INCH CUT.

HORSE MOWERS 25 TO 40 INCH CUT.

OUR SIDE WHEEL MOWER LIGHTEST AND SIMPLEST AND MOST DURABLE

ALL OUR MOWERS GUARANTEED.

CHADBORN & COLDWELL MFG. CO., Newburgh, N.Y.

Send for Illustrated Circular and Price List.

CITY AND COUNTRY TRADE
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Celebrated Excelsior Lawn Mower.

H. B. GRIFFING,
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1880.

Pennsylvania Lawn Mower,

Surpassing all others and pronounced **the best,** lightest, runs more easily, cuts longer grass, is more durable, requires less repair, cuts grass more smoothly, is less liable to obstruction, is of handsome appearance.

Penn. State Agricultural Society says, "It will, we believe, wear longer, do the work better with less labor than any other Mower. One of the peculiarities is that it will cut higher grass than any other Mower."

Every machine warranted. Address
LLOYD, SUPPLEE & WALTON, Philadelphia.

LAWN MOWERS.

The VELOCITY, The TRIUMPH, The EXCELSIOR.

All at lowest prices. Send for circulars.

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"BUCKEYE"

LAWN MOWER.

The Lightest and Easiest RUNNING MOWER ever made.

Strictly First-Class.

MAST, FOOS & CO.,
Springfield, Ohio.

Send for Catalogue.

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Keeps the highways *five times better* for *half* the *present cost* Is rapidly coming into favor in city and country. Circulars free.

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AGENTS wanted.

CHURCH'S HAY ELEVATOR & CARRIER

Best in use for mowing away hay in barns or stacking, being adapted for either purpose. Has no equal for **simplicity, durability,** and **good work.** The track is **self-adjusting** and is easily put up. Will be sent to responsible parties on trial. **Send for special terms for introduction.** Price within reach of all. Send for descriptive Circulars and Price List to **E. L. CHURCH & CO.,** Manufacturers, Harvard, McHenry Co., Ill.

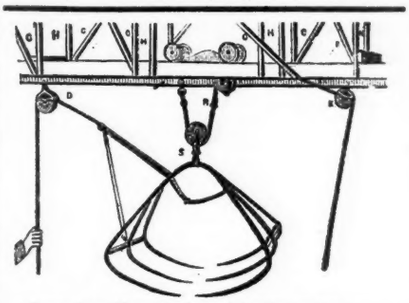
DOUBLE HARPOON

HORSE HAY-FORK.

BEST IN THE WORLD.

Descriptive Catalogue sent free.

Pennock Manufacturing Company,
KENNETT SQUARE, Chester Co., Pa.



Grappling Hay Fork and Railway Hay Conveyor. Best combination known. Used by thousands. Circulars sent. Agents wanted. **G. B. WEEKS,** SYRACUSE, N. Y.

Gardner's Railway Pitching Apparatus.

Consisting of Carrier, Grappling Fork, Pulleys, and Hooks. For unloading Hay, Grain, Beans, Corn Stalks, loose or in bundles, etc. Can be used in any barn. Also, Improved Stacking Apparatus. Send for Circular, and get valuable information.

E. V. R. Gardner & Co.,
Johnson's, Orange Co., N. Y.

IMPROVED BAY STATE RAKE.

This Rake Received the Highest Award at the Centennial Exposition and Field Trial. The only Silver Medal awarded at the Paris Universal Exposition, in 1878.

This rake has taken more first premiums than any other rake.

It is Easily Handled by a Girl or Boy, strong enough to drive a horse.

MANUFACTURED BY
THE BELCHER & TAYLOR AGRICULTURAL TOOL CO.,
Chicopee Falls, Mass., U. S. A.

SPRING STEEL TOOTH

HORSE RAKES.

Highest Award at the **Medal of Honor**

Centennial and Vienna Exhibitions.
CHAMPIONS OF THE WORLD.

No Cogs or Ratchets, Easiest Hand or Horse Dumping. Purchasers prefer them to all others for Durability and Efficiency. Fully guaranteed; so no risk is incurred in ordering from us. Responsible Agents wanted where we have none.

Send Stamp for Catalogues of RAKES, THRESHING MACHINES, &c.

WHEELER & MELICK CO.,
ALBANY, N. Y.

WARRANTED THE "BEST"

Send for descriptive circular. Address
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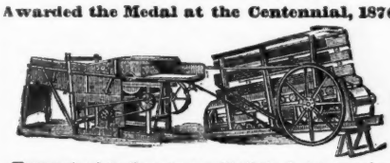
HEEBNER'S IMPROVED

Level Tread Railway Horse Power with Patent Speed Regulator.

Awarded the Medal at the Centennial, 1876.



Horses stand in the power with their feet in a natural position, relieving them of all strains and much of the fatigue occasioned by working on tread powers of the old style. Smooth shod horses or oxen work on them, walking at the rate of only 1¼ miles per hour. These Powers require less elevation, give more power, save the horses, and save money. Made with double or single gear, for one and two horses, and have the only successful Speed Regulator in the world.

LITTLE GIANT THRESHER & CLEANER.

The simplest, most durable, best and easiest working, and cheapest machine for threshing and cleaning all kinds of grain, also flax, millet, clover, and timothy seeds now in use. It contains more good points than any other in use. These Powers and Threshers are pronounced by all who use them to be, beyond a single doubt, the best in use. We own all the patents, and are the Sole Manufacturers, and have the machines in use all over the world. Send for illustrated catalogue. **HEEBNER & SONS,**
Lansdale, Montgomery Co., Pa.

BEST RESULT EVER OBTAINED.

THE NEW MASSILLON THRESHER.

Record, 1 Bushel waste in 2,640. This when threshing at the rate of 132 Bushels per hour in a 15-minute run. Send for particulars. Address RUSSELL & CO., Massillon, O.

Something New.

The Farmers Friend

Corn Planter.

There is not an advantage possessed by any Planter that is not applied on this machine.

ANOTHER ANNOUNCEMENT.

THE MONARCH Grain and Fertilizer Drill.

The latest and best "Adjustable Feed" in the market.

Also, THE OLD RELIABLE

FARMERS FRIEND DRILLS,

with the **CONE GEAR** and **Double Force Feed.**

Full information free by addressing

FARMERS FRIEND M'F'G CO.,
DAYTON, OHIO.

WILBER'S DIRECT DRAFT

EUREKA MOWER

Is the LARGEST, CHEAPEST, and

Lightest Draft Mower in the World.

☞ It lessens the expense of gathering the Hay Crop fully twenty-five per cent. Address

EUREKA MOWER COMPANY,
Towanda, Bradford Co., Pa.

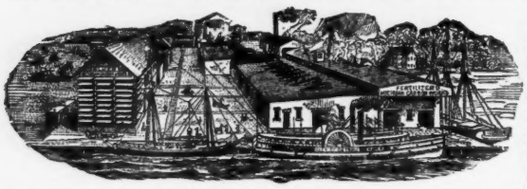
FARMERS AND DEALERS, READ THIS!

These cuts represent our 20 Steel-Tooth Horse-Rake, with Iron Hubs (or Locust Hubs boiled in oil)—9000 in use—and our Positive Force-Feed Grain, Seed, and Fertilizing Drill (which can be changed to sow any quantity while Drill is in motion), with Pin or Spring Hoes—2377 in use and giving satisfaction. All manufacturers say theirs are the best. All we ask is, send for *Descriptive Circular and Price-List*, which contains letters from persons using them. All are *warranted*.

Hagerstown Agricultural Implement Mfg. Co.
State where you saw Advertisement. **Hagerstown, Md.**

THE HOMESTEAD,

A HIGH-GRADE SUPERPHOSPHATE.



Our works are among the most complete and extensive in the country, and have every appliance to enable us to furnish Standard Fertilizers at the Lowest Price. Our machinery is of modern and improved construction, and our goods are made under the guidance of an able chemist, who inspects every lot before being placed on the market. With the large amount of capital invested in the HOMESTEAD, we are much more interested in having its high character maintained than any individual purchaser could possibly be; and this fact alone should assure the farmer that every pound he buys is all that is represented.

As manufacturers of Animal Charcoal, we have at our hands the most valuable material used in making fertilizers—viz., Bone Black Dust. This fertilizing substance contains eighty per cent. of phosphate of lime, against fifty-five per cent. contained in raw bones; and its well known value commands so high a price in the European markets that but very few manufacturers of fertilizers in this country use it. Although the HOMESTEAD Fertilizer costs us more to manufacture than if prepared of the materials generally used, we shall continue its present high standard, and place on the market a genuine, pure Bone Black Phosphate.

ALMONT, MICH., June 18th, 1879.

MICHIGAN CARBON WORKS, DETROIT, MICH.:

Gentlemen:—Please notice the enclosed photograph of wheat cut from the same length of drill, seven inches apart—superphosphate and no superphosphate. Draw your own conclusions which is which. Of course, this is showing more difference than the field will average; but this shows what superphosphate will do on very poor soil. This was cut from a very poor spot, but each having the same chance, with the one exception. It was cut 12th of June. Shows the earliness of that fertilized. I have the best piece of barley in this section—100 lbs. superphosphate per acre sown on wheat stubble. The best farmers here are taking note of these things.

Very truly,

F. J. GROAT.

MEDINA, ORLEANS CO., N. Y., August 7th, 1879.

MICHIGAN CARBON WORKS:

Gentlemen:—Enclosed please find a photograph of some barley. This barley was grown on A. H. Poler's farm, four miles south of Medina, Orleans Co., N. Y.

I made a frame four feet square and set it in the standing grain on the day of its being cut. I then cut and gathered all that stood within the frame of each, where there was phosphate and where there was no phosphate. I let it lay in the sun one day to cure, then weighed each bundle as you see it on the photograph.

The phosphate was put down with the seed with a fertilizing drill, the teeth being six inches apart. These bundles were cut side by side, only six inches apart. The one on the left of the photograph had no phosphate, and weighed twelve ounces. The one on the right had one hundred and forty pounds of the Homestead Superphosphate to the acre, and weighed two pounds and fourteen ounces to the four feet square. *This is correct.*

A. H. Poler also experimented on corn, potatoes, and winter wheat, with as good results on each as on his barley. Of course he has not harvested his corn; but it stands sixteen inches higher than the rest of the corn and earing one-half better.

Yours, respectfully,

GEO. W. POLER.

ACTUAL RESULT AT OUR SEED-FARM ON LETTUCE SEED.

Homestead produced	583 lbs. per acre.	116 lbs. of lettuce seed, at $1.25	$145 00
Where none was used	467 " "	560 lbs. of Homestead, at $40 per ton	11 20
Difference favor of Homestead	116 " "	Actual profit per acre	$133 80

D. M. FERRY & CO.

Send for Circulars, giving full reports of results and all particulars in regard to use.

☞In places where we have no authorized agent a barrel of 200 pounds will be sent on receipt of $4.

ODORLESS FLORALIS.

Prepared expressly for Lawns, Flower Gardens, Pot and House Plants.

DIRECTIONS.—Use three tablespoonfuls of the manure to a gallon of water. Steep twelve hours before using, and keep well stirred while being applied. Do not apply oftener than once in two weeks.

PRICES, { Box containing 10 lbs. $1 00
" " 25 lbs. 2 00
" " 50 lbs. 4 00

Sent anywhere in the United States or Canada, by express or freight, on receipt of cash orders.

MICHIGAN CARBON WORKS, Detroit, Mich.

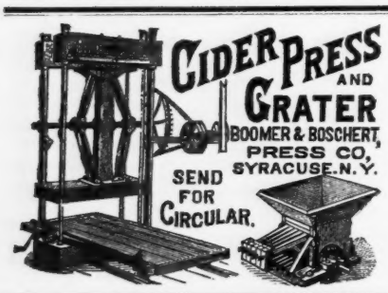
GOOD AGENTS WANTED IN EVERY TOWN.

Stockbridge Manures. Bowker's Phosphates.

ANIMAL MEAL. LAWN DRESSING.

NEW PAMPHLETS AND CIRCULARS JUST OUT—MAILED FREE. Address

BOWKER FERTILIZER CO., 43 Chatham St., Boston, Mass. 3 Park Place, New York. 81 Exchange St., Rochester, N. Y.



WM. D. ANDREWS & BRO.,

TUBE WELLS.

235 BROADWAY,

Opposite Post-Office, NEW YORK.

Fit all drill boots, run level, cut to *bottom* furrows, cover with *mellow* soil, and instead of *crowding the seed* into narrow rows but *one inch in width*, scatter it 3¼, 4, and 5 inches; the plants thus standing *wider apart*, have more ROOM TO STOOL, derive more nourishment from the soil, become more vigorous, and produce better developed average heads.

Send for Illustrated Circular with Testimonials to

As ye sow, so shall ye reap. **J. A. JONES, Wilmington, Del.**

A REPLANTER

Is offered for planting Corn and other large seed, combining simplicity, utility, and accuracy. *It will plant in all soils.* Boys can do good work with it, and are delighted to get to use one. Price only $3, delivered at your nearest station or express office. Agents wanted.

THOS. B. McCONAUGHEY, *Newark, Delaware.*

WELL BORING,

ARTESIAN WELL DRILLING & MINERAL PROSPECTING MACHINERY.

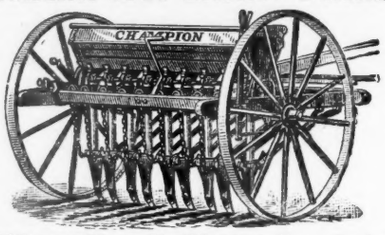
and how to use, is fully illustrated, explained and highly recommended by the "American Agriculturist" in the November Number 1878: Page 465. Send for it. Portable, low priced, worked by man, horse or steam power. Needed by farmers in every county. Good business for Winter or Summer and very profitable. Can get good wells in earth or rock anywhere. We want the names of men that need wells. Send for illustrated price-list and terms to Agents. Address,

Pierce Well Excavator Co., 29 Ross Street, New York, U. S. A.

Champion of the World!

THE

CHAMPION GRAIN DRILL



With or without Fertilizer, or Grass Seeder Attachments, or Gum Spring Hoes.

It has a **perfect force feed** Grain Distributer that will sow accurately all kinds of grain without the least injury to the seed. The most perfect **Force Feed Grass Seed Distributers** in the market. Fertilizer attachment **can be relied upon** to sow all kinds of commercial manures whether dry or damp in any desired quantity. **Draft Light, Construction Simple, but durable.** Liberal discount to cash customers. Send for descriptive circular.

JOHNSON, GERE & TRUMAN, Owego, Tioga Co., N. Y.

METROPOLITAN AGRICULTURAL WORKS.

Farm Implements and Fertilizers.

No. 1 Peruvian Guano; Standard. No. 1 Peruvian, Lobos brand.—**Russel Coe's Superphosphate of Lime, Complete Manures, Metropolitan Fertilizer, Pure Ground Bone.**

Sold at lowest trade price, by the ton or cargo. Send for 1880 Pamphlet.

H. B. GRIFFING, No. 70 Cortlandt Street, New York City.

THE BEST ALWAYS PAYS.

In order to be able to meet the increasing demand for **PURE PREMIUM BONE,** we have removed our entire establishment from Salem to Alliance, O., where we shall be pleased to see and hear from all who want the best fertilizer that the market affords. Address all communications for the purchase of Premium Bone or sale of raw stock to LEWIS SCHILLING, *Pres't,* Excelsior Fertilizing Co., Alliance, O.

CHAPMAN & VAN WYCK,

(Established 1849),

DEALERS IN

PERUVIAN Guano

EXCLUSIVELY,

170 Front Street, New York.

W. S. BLUNT'S

Universal Force Pumps.

Secured by letters patent.

THESE PUMPS HAVE RECEIVED THE "MEDAL OF SUPERIORITY." The highest award of the American Institute for 1878 over all competitors.

These pumps have enormous power, and are for the house or for **out-door wells** of any depth. They are constructed with special regard to strength, ease of working, and durability. They can be immediately changed from lift to force pumps, and the air chamber can be revolved, so as to allow the handle to work at any desired angle with the spout. Having close tops, they cannot be tampered with. Attention is called to our new elegant pattern **DEEP WELL non-freezing FIRE PUMP. Also, Blunt's Sand Vacuum Chambers.**—A complete protection against sand or gritty water in **dug or driven wells, pits, mines, and rivers. For hand or steam pumps,** all sizes, from 1¼-inch to 4-inch suction pipe.

Send for circulars to

NASON M'F'G CO., 71 Fulton and 71 Beekman St. New York.

New England Agency, **A. M. MORTON & CO.,** 35 Washington St., **Boston, Mass.**

Pacific Coast Agency, **Dunham, Carrigan & Co., San Francisco, Cal.**

FANCY SILKS,
BLACK SILKS,
SATINS,
VELVETS,
BROCADES,
WEDDING OUTFITS,
DRESS GOODS,
CASHMERES,
BLACK GOODS,
PRINTS,
PERCALES,
LINENS and COTTONS,
DRESS MAKING,
MANTLES,
CLOAKS,
SUITS,
SHAWLS,
INFANTS' WEAR,
BOYS' WEAR,
GIRLS' WEAR,
CLOAKINGS,
BLANKETS,
WOOLENS,
HANDKERCHIEFS,
TRIMMINGS,
GLOVES,
HOSIERY,
Underwear in Muslin and Merino, etc.

DRY GOODS
BY MAIL OR EXPRESS.

OUR MAIL ORDER DEPARTMENT is now so systematized, and in charge of such thoroughly competent and experienced hands, that persons unable to visit our store can do their shopping by writing us for samples or goods, with the assurance of getting them at the **same prices** as if buying in **person.** We carry an *average* stock of about **half a million of dollars,** *all bought for prompt cash* in the markets of Europe as well as in this country. Try us, and see how **cheaply** and **quickly** you can get what you want by mail or express. When in town we shall be pleased to have you call on us.

SEND FOR CATALOGUE OR SAMPLES.

COOPER & CONARD,
IMPORTERS AND RETAILERS,
Ninth and Market Streets,
PHILADELPHIA.
Established 1852. Mention this paper.

CAUTION!—The great popularity of, and increasing demand for our "Automatic" Sewing Machine induces unprincipled agents to deceive customers by claiming, for their old pattern machines, automatic and other features belonging exclusively to us.

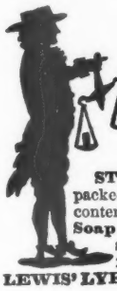
THE
"New Automatic"
or "NO TENSION" Silent Sewing Machine

Differs in all essential respects from every other Machine! Only Machine without a Tension, and Bobbin or Shuttle!—Only really Light-Running Machine!—Only Machine with Stitch-Regulator!—Easiest to Work!—Fastest!—Makes Strongest Seam!—Absolutely without Danger to Health!

As it is impossible to convey by advertisement an idea of the unique and wonderful features of this Machine, we solicit **DIRECT CORRESPONDENCE** from all persons owning or about to purchase a Sewing Machine, and will carefully and promptly reply to all communications.

Address, **WILLCOX & GIBBS S. M. CO., 658 Broadway, New York.**

The Ready Family Soap Maker: **LEWIS'**



PERFUMED LYE
98 Per Cent. Pure!

STRONGEST AND BEST LYE MADE. *This LYE is a FINE POWDER,* and packed in cans with an ordinary slip-lid like our Baking Powder, so that any portion of contents of can may be used without spoiling balance. **12 pounds of Perfumed Hard Soap** made in *twenty minutes without boiling,*—and your wash will be sweet and clean to the senses, without that nasty smell produced when using ready-made Soap or Soap made from other Lye. **One teaspoonful will soften five gallons of hard water. LEWIS' LYE is 28 per cent. stronger** than any other Lye or so-called Rock or Ball Potashes.

MANUFACTURED ONLY BY
GEORGE T. LEWIS & MENZIES CO., Philadelphia, Pa.

FARMERS AND OTHERS
having spring or running water can have the water conveyed to their premises by using a Hydraulic Ram. More than 800 different styles. **Lift and Force Pumps, Hydraulic Rams, Etc.**
Send for circular and prices.
RUMSEY & CO.,
Seneca Falls, N. Y., U. S. A.

THE PERKINS' WIND MILL.
Was the first solid Wheel Wind Mill that governed itself successfully. The Best in the market for the last 10 years. For Beauty, Strength, Durability, and Power it has no equal. Warranted to stand any storm in which other substantial buildings stand. Send for circular with full description and prices.
Perkins' Wind Mill & Axe Co.,
Mishawaka, Ind.

We manufacture the old reliable **Stover**—the well tried, strong, durable, self-regulating, solid wheel **Wind Mill,** which took *the* Centennial Diploma, as well as a Medal. We refer to the **Official** Centennial Report. Also O. E. Winger's Improved $20.00 Feed Grinder, which is operated by Pumping Wind Mills—a novel and perfect Mill for grinding all kinds of grain for stock and house use, and Winger's Gravity Churns. Agents wanted everywhere. Send for catalogue **B.** Branch Factory at Kansas City, Mo.
STOVER WIND ENGINE CO., Freeport, Ill.,
E. B. WINGER, General Manager. U. S. A.

PAINT WITH
EMPIRE RUBBER PAINT.

Is durable, elastic, and has a water-proof surface. We guarantee it. Sample card of colors furnished free. Address
EMPIRE RUBBER PAINT CO.,
42 Cortlandt St., N. Y. City.

HALLADAY
STANDARD WIND MILL.

VICTORIOUS AT
Phila., 1876—Paris, 1878.
25 Years in Use.
GUARANTEED SUPERIOR
To any other Windmill Made.
17 Sizes—1 Man to 45 Horse Power.
Adopted by the leading R. R. Co.'s and by the U. S. Govt. at Forts and Garrisons.
$3,500,000 worth now in Use.
Send for Catalogue **"A."**
U. S. Wind Engine & Pump Co.,
Batavia, Ill.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from Page 220.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.

The German Edition.—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

Bound Copies of volume 38, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 2d cover page.

Clubs can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

Terms to New South Wales, New Zealand, Australia, Africa, etc.—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist* (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon 22 cents to the shilling sterling.

Home Made Root Cutter.—"L. B." In the March number for last year we gave a description, with illustrations, of a cheap and easily constructed cutter for preparing roots for farm animals.

Osage Orange a Rapid Grower.—A specimen of Osage Orange planted by Dr. Darlington at West Chester, has been recently cut down. At one foot from the ground, the body of the tree, about 50 years old, was 10 feet 3 inches in circumference.

Liquid Manure.—The amount of fertilizing material in the urine of animals equals that contained in the solid excrement, but is in a form that may be very readily lost. The *Urea* is the ingredient of chief value—a quite complex nitrogenous substance which is easily decomposed into Carbonate of Ammonia, and then escapes into the atmosphere. Whenever there is a pungent odor of ammonia from a manure heap, or tank in which liquid manure is stored, there is a loss of valuable manure taking place, and it should be arrested by using some absorbent as plaster, muck, or litter of any kind.

Asparagus in Wet Soil.—"S. T.," Marion, Ind., writes to Peter Henderson, asking a question on Asparagus culture. Thinking that the reply may be of use to many others, Mr. H. sends it for the Basket. "His land is 'rich alluvial deposit, which at certain seasons of the year is covered by water for three days at a time,' and he wishes to know if such land 'would be suitable to grow Asparagus or other crops.' We think not, the land being covered with water for three days becomes so completely saturated that the roots are actually in water for twice or thrice that time, and no plant other than an aquatic could so long endure inundation without injury. These bottom lands on the margins of streams, are usually most fertile, and if by diking or banking, the water can be kept off, no land is better fitted for garden crops."

"I Do Earnestly Desire Information," is the ending of a letter which we *could* have answered on a postal card, and it would have reached the writer in time to be of use. But the writer, though he so strongly expresses his "desire for information," takes very good care that we shall not give it to him, for he signs himself "Young Gardener." He has cut us off from reaching him by mail, and as for the paper, we have a rule not to answer anonymous letters. If those who write us do not sign their names, the letter goes into the waste-basket, unless, as in the present case, we make use of it as a text to remind new subscribers of this rule. A number who have lately asked a variety of questions, and have not given their names, should, if the answers are of importance to them, repeat the questions over their own signatures. It so happens that one at least of "Young Gardener's" queries is answered in this paper, the same having been asked by one who gave his name. It should be understood that we do not publish a name when we know that the writer prefers that we should not do so; this he could have indicated by placing his real name after or below the signature "Young Gardener."

Another Veteran Peach Tree.—C. Thompson Adams, Norfolk Co., Mass., sends an account of a Peach-tree that he had just cut down. "The tree was on the land when my father bought it in 1840. It came up from a hole made by lightning, at the foot of a large Oak that was struck and killed, the seed having probably been planted by a squirrel. For the past 10 years it has borne more or less fruit, though previous to that time it bore but little." Forty years and over is old for a peach tree.

Hay Caps are usually made of common unbleached cotton, and it is best to buy that which is fully a yard wide, as it, when cut into squares, makes the most economical caps of the most handy shape and size. The raw edges should be hemmed, which can be done very rapidly on a machine; at the same time the corners should be turned up two or three inches, thus making a fold in which a cord may be inserted. This cord should form a loop, by means of which the cap can be pinned down with short wooden pins provided for the purpose. These caps are of great value, as a large quantity of hay may be secured against a sudden storm at just that time when a rain is so damaging to the curing hay.

Liquid Manure.—To answer several inquiries at once, we may say that either horse, cow, sheep, or hen-manure may be used, and no definite rule can be given beyond the caution to not use it too strong. Where there is a provision for saving the drainage from stables, this may be used upon the garden if sufficiently diluted. A cask or barrel may be prepared by putting some straw in the bottom and half or two-thirds filling the barrel with horse, cow, or sheep-manure. This is to serve as a leach, pouring water in at the top and draining off the manure "lye" at the bottom. The old direction to dilute this to "the color of boarding-house tea," is perhaps as definite as any. Where guano is used, one pound to five gallons of water is abundantly strong, and with the best Peruvian Guano, twice the quantity of water to a pound would be safer. In the use of liquid manure, some precautions are to be observed. It is not to be applied to the foliage, but to the root of the plants. In dry weather, draw away the surface soil, apply the manure, and when this has soaked in return the soil. This is to prevent the baking of the wet soil and forming a crust. A better way to accomplish this is to place a mulch of straw, litter, or chips, on the surface around the plants. The manure may be applied through this mulch. In a dry time, do not use the liquid manure unless the plants can be kept watered as needed until rain falls again.

Swedish or Alsike Clover.—Several have written us from different parts of Pennsylvania, stating that a person was selling seeds of the Swedish Clover, and asking our opinion about it. None of these reported any thing beyond the bare fact, and as our "opinion" of the matter would depend altogether upon what was represented in regard to the clover, it was difficult to reply. There is no special reason why one should go about selling this seed any more than he should that of Hungarian Grass, Buckwheat, or any other seed kept by all the regular dealers, and we were curious to know what the vender claimed for this clover. At last Mr. S. Stouffer, of Huntingdon Co., has sent us a circular, and a remarkable document it is. We are told that the clover "takes its name from the Alsacian districts of Stockholm,"—which is about like saying that Buckwheat gets its name from Bucks Co. in Rhode Island. We are told that the clover is "extensively cultivated by the leading agriculturists of Great Britain," which is not true. We read in the circular of "Its Great Hardiness, for no winter can kill it, capable of resisting the extremes of drouth and frost, and the certainty of the plant when other varieties fail." The latest authority on this point that occurs to us is Mr. Root, who is, as was Mr. Quinby before him, much interested in this clover as a honey-producing plant, and would gladly have it succeed. In his recent "Bee-Keeping," he says: "But experiments indicate that in dry sandy soils it is not permanent, and will not survive the second winter." Our correspondent sends us a sample of the seed to know "if it is genuine;" we can only say that it looks like the seed of Alsike Clover, but when Mr. Vosburg says "Sold only by" himself, he tells that which an inquiry at any seed store will prove to be as much a work of his vivid imagination as some of the other remarkable statements in his very remarkable circular. We are told that the peddler sold his seed at the rate of $45 per bushel. As this is just two and a half times the *retail* price of the regular dealers, it is not difficult to see why he should peddle. We have frequently cautioned our readers that new and valuable seeds and plants were not hawked about the country by peddlers; such things are first to be had of the regular dealers. This clover is not at all new, nor is it, in this country, especially valuable.

"Making Roads."—The repair of roads is much more costly than it should be because the system—if it can be called a system—of their construction is extremely faulty. An earth road, rounded up in the center, can seldom be more than passable for at least a third of the year. The repairing of such a road usually consists in adding more earth, and this is usually done in the worst season of the year. It is not to be expected that American roads, constructed so rapidly, can be made like the hard, smooth, and lasting road beds of older countries, but the work that is done on them, from year to year, should be of such a kind as to make an approach to a perfect road. Broken stone is the best material for road-making, and as this is a common material, it should be much more generally employed. Just how this stone is to be used and where, are matters which each town or road district must decide. Whatever is done, let it be done well, and make a finish of the work as far as it goes. The most used and worst part of the thoroughfare should have the first attention. A little good road made each year will in time see the whole in a satisfactory shape.

Grinding Tools.—The value of an edge-tool depends very largely upon the cutting edge, or, in other words, upon the kind and frequency of the grinding. An instrument that is "as dull as a hoe," ought not to be very dull. The ease with which weeds may be cut with a hoe kept sharp by occasional grinding, compared with the trouble given by a hoe that is never sharpened, ought to lead to the practice of keeping them sharp. We know that turning the grindstone is back-aching work, but when a few minutes of it makes the reaper or mower go much easier for several hours, the grinding should not be neglected. It is a saving of labor to keep the tools sharp; it pays in every possible way.

The Buckwheat Crop is the last crop of the season, and in the latitude of New York, is sown the last of this month or early in July. It is frequently a "filling crop"—that is, sown in some place where some early crop has failed. It is often used to kill weeds, as it is a rank grower, and completely shades the ground, thus acting as a "cleansing crop." As a means of bringing up the fertility of poor or partly exhausted soil, buckwheat is specially good, as it is a close and pretty deep feeder, and will produce a large crop of green material that may be plowed under, thus increasing the organic matter and thereby enriching the soil. The quantity of seed to be sown is from two to three pecks per acre.

Michigan Timber.—The "Peninsula State" leads all others in the production of timber, but at its present rate, its valuable wood-land must be diminishing very rapidly. The "crop" for 1879 is reported as follows:

Saginaw District	736,106,000 feet.
Huron Shore District	410,646,000 "
Interior Mills	518,670,000 "
Lake Michigan Mills	1,338,127,000 "
Total	3,003,549,000 "

Australian Competition.—The shipment of meat from Australia to England has been successful, and that great island-continent, with its 7,000,000 head of cattle, enters the contest for supremacy in the British Meat Market. In this matter, we, as a nation, are deeply interested, because any competiton like this, leads to questions that are vital to the meat producers of our great grazing interior. Can the growing of cattle be cheapened? This is a question which is the natural outgrowth of rivalry; and this will lead to an improvement in the kind of animals; the production of more and better meat. All this is natural, and leads to good results. The matter of transportation will not be behind other interests, and a reduction of the present high rates will follow. Not the least among the benefits, will be a serious handling of the question of the necessities of the middlemen, with a reduction of the number of hands through which stock now must pass, each one taking a portion that ought to go by good rights to the producer, or at least, be divided between him, and those who consume the meat. There are a number of important problems involved in our present production of meat, that a healthy rivalry will lead us to solve, to the best good of all concerned. With our large, vast grazing country, and a proper adjustment of transportation rates, a better class of animals, etc., we may hope to compete with Australia or any other country, in supplying meat to England.

Dipping Sheep.—The effect of a Dip is to free the sheep from all external parasites, as ticks, scab, etc., and skin diseases, the causes of some of which are not fully understood. A Dip of 12 lbs. of Tobacco and 6 lbs. of Flowers of Sulphur, to 50 gallons of water, is one that has been so generally used, that it can be recommended. Some add to this a little Concentrated Lye, a pound or so, and about the same quantity of Arsenic. If arsenic is used, proper caution should be exercised, and the poisonous nature of the mixture kept in mind. The sheep are to be dipped while the mixture is warm. Those who have had experience claim that the dip of tobacco and sulphur will do all that can be accomplished by the use of arsenic. It may not be generally understood that sulphur does not dissolve in the Dip; hence, in order that each sheep may get its share, the mixture while in use, should be frequently stirred up from the bottom, and the sulphur be thoroughly diffused through the liquid.

Coal-Oil Barrels.—In answer to an inquiry as to the best method of preparing kerosene and other such barrels, so that they may be used for cider, etc. "C. K. C.," Beliot, Wis., writes: "Take one head out of the kerosene barrel, start a fire in the bottom, and put a bushel of dry straw, or long shavings, in to keep it burning long enough to draw the kerosene out of the wood; let it burn a few minutes, and just before the wood commences to burn, turn the open end to the ground, and the flame will be smothered. Use the barrels for water a couple of weeks, put the head in again, and they are ready for cider, or anything else one chooses to put into them. The barrels will be worth double the price of common ones." C. K. C. omits to state that the other head that is removed should also have the same treatment and be burned, etc.... Another correspondent, "R. P.T.," Cedar Rapids, Iowa, recommends to first burn thoroughly, then scrape, and scald them with hot water, then fill them up with clay, letting them stand with the clay in them for 4 or 5 days." R. P. T. omits to say what kind of clay, whether dry or moist. As it is to act as an absorbent, we suppose it should be dry. Would not dry earth answer as well as clay?.... W. Scott, Kankekee Co., Ill., says that he has cleaned fish barrels and made them sweet enough for packing butter by half filling the barrel with lye and rolling it occasionally; when the lye has taken up all the grease, it is emptied out and the barrel filled with water and allowed to stand for several days. We doubt if this method would be of much utility with coal-oil barrels.... "C. A. E.," Bridgeport, Mich., says if the barrel is so placed that the steam from the exhaust pipe of a steam engine will pass through it, that no smell of oil will be perceived after a few weeks. He also says that they will become sweet if used for a few months as rain-water barrels.

Pipes for Conveying Water.—"I wish to bring water from a spring to my house (or barn), what kind of a pipe shall I use?"—is in brief the substance of several letters that have come of late; though some express fears of lead pipe, others ask if iron pipe can be used with safety, and so on. Probably in regard to cost, ease of laying, etc., lead pipe is cheapest, so far as outlay goes, but it may be dear in the end, as in some cases its use has caused serious illness. For all soft water, lead pipe should be avoided, but for hard water it may be, even for domestic purposes, used without danger. Hard water soon forms a coating over the interior of the pipe, and the water no longer acts upon it. Where water is flowing continuously through the pipe, or where the precaution is taken to first draw off all the water that has stood for some hours in the pipe—a precaution so easy that it should always be taken—there is little or no danger in the use of lead for any but the softest water. Iron pipe is quite safe; it soon becomes coated with the oxide of iron, and if some of this be taken into the system no harm can follow. "Galvanized iron," so called, is iron coated with a film of zinc, to protect it from the action of the water. This it does effectively, but the zinc itself is acted upon by the water, and is more or less dissolved by it, hence galvanized iron pipes should not be used for water. Tin-lined lead pipe would be excellent were it not for the fact that tin is very brittle, and is liable to crack; when this takes place the lead is dissolved more rapidly than were it not so coated, and as there is always danger from this source, such pipes are not advisable. Of course there can be no objection to glazed earthenware pipes, but they can not be used where there is much pressure, and the cases in which they are available are comparatively few. On the whole, for soft water, iron is the best material, while for waters too "hard" for washing, lead may be used with entire safety if the precaution above mentioned be observed.

The Prize Essays on Keeping One Cow.—The prizes offered in the February number of the *American Agriculturist* brought to the Editors more than seventy (73) essays. Over half of them thoughtfully and well written. They were submitted to two gentlemen in entire ignorance of who their authors were, and they awarded the prizes as follows: 1st prize, $50, to "Buttercup," Mrs. G. BOURINOT, House of Commons P. O., Ottawa, Canada; 2d prize, to "Doctor," W. S. BATTLES, Girard, Pa.; 3d prize, to "Mobile," GEO. G. DUFFEE, Mobile, Ala.

Insects and Force Pumps.—A few years ago we knew not the Potato Bug, and the makers of pumps and hand-water engines of all kinds could make their squirts to clean carriages, wash windows, put out fires, and do various other feats in hydraulics without regard to bug killing. Now a pump that does not provide for the potato is not complete. Such was our thought as we unpacked the parts of "Lewis' Combination Force Pump." It must not be thought from this that the pump is complicated—as it requires but a simple change to convert a regular force pump, with its short hose, into a garden syringe. Another slight change—and there you are—a Paris-greener or London-purpler—the potato bugs are provided for, and the combination is complete. The thing is a perfect arsenal of water guns, each serviceable in its way, and made for use rather than show.

"The Complete Home."—If an inexperienced house-keeper wishes to know how to cook a particular dish, there is a whole library of works ready to help her. But cooking is not the only department in the management of which a young house-keeper, and for that matter, one who is not young, needs advice, and it is very seldom that it can be had save of some other house-keeper of wider experience. But every mother of a family has not a friend at hand to whom she can go in her doubts and perplexities concerning the various matters of home management; and the work entitled "The Complete Home" is intended to be an adviser in not only what relates to the material comfort of the home, but with regard to what we may term the morals of the household. In all that relates to—what old fashioned people call "the bringing up of children"—its teachings appear to be eminently sound and useful, and it is a work that may prove a comfort and a help to many a mother.

Milk in New Jersey.—New Jersey has excellent laws regarding the sale of milk; that State has a way of executing her laws (and sometimes the people who don't observe them) and the State Board of Health are taking measures to put them in force. Dr. Wm. K. Newton, Paterson, has been appointed State Inspector of Milk and circulars are sent out informing people of the requirements of the laws. The case is well covered by this statement—"Milk may be defined as pure when it comes from a healthy cow and when nothing is taken from or added to it." Those who deal in any other kind of milk are liable to both fine and imprisonment. The State Inspector wishes to obtain samples of milk from diseased cows, especially from cases of pleuro-pneumonia—they may be sent to his office in Paterson.

American Cutlery.—It is not many years ago that it was rather a severe test of one's patriotism to purchase an American knife, the chances being greatly against it being of serviceable quality. At present American knives are among the best. We are glad to know that in making scissors great progress has been made by our manufacturers. Large scissors or shears have long been produced of excellent quality, but small, delicately formed and highly finished scissors were until recently imported. There is no need to look abroad for scissors, to judge from a sample of the manufacture of Maher & Grosh, Toledo, Ohio, recently placed on trial. Of course one can not tell how they will stand the wear of months, but for present excellence, fine form and finish, they are exceedingly creditable and full of promise.

"The" Authority.—The street signs of New York are always interesting and especially so just after the May movings. A rural paper published in the City of New York celebrates its removal with a perfect eruption of signs. One of these reads "The American Horticultural Authority." "*The* Authority" is good, and it was well to put it on the sign, as it might not be discovered by reading the paper.

To Measure Corn in the Crib.—"R. A. S.," Douglass Co., Kansas, writes: "Get the contents of the crib or bin to be measured, by multiplying the length and breadth, and this product by the hight, all in feet. Multiply the product by 4, and cut off the right hand figure. For example, the crib is 10 by 16 feet, and 8 feet high, 10x16x8=1280. Multiply the product 1280 by 4, makes 5120, and cut off one figure, giving 512, the number of bushels of corn. Should the corn be settled very tight, having been in the crib for six months or more, I multiply by 4½ instead of 4. I have bought and sold thousands of bushels by this method, and know it to be correct. Place this in your 'Boiled down' list, recommending it to be pasted on the barn door of all corn raisers." This is certainly a quick method.

The Hydrangea "Thomas Hogg."—No longer ago than October, 1876, we published an engraving of this Hydrangea, and described it as one of the most important of recent novelties. This spring we find it very generally for sale by the street venders of plants who offer it among verbenas, geraniums, and other plants at the stands near the markets. This shows two things: 1st, that the plant is of easy propagation, and 2d, that it itself possesses merits which will make it popular. Both of these are true of this; but we always regret to see persons buy plants forced into flower.

Prof. A. R. Ledoux.—We mentioned some months ago that Doctor Ledoux had resigned his position as chemist to the N. Carolina State Board of Agriculture. A few days ago we had the pleasure of a call from him and learned that he had already established himself in the city as a chemist and proposes to give special attention to investigations relating to agriculture.

Night Soil.—This name was given to the contents of privies, because the emptying of them is largely done at night. Its bad odor is the chief objection to its use upon the garden, and this is enough to keep it from being employed, unless it is first deodorized. Liquid from the privy vault may be used, by making holes here and there in the garden soil, filling them with the liquid manure, and replacing the earth after that has soaked away. We have raised very fine tomatoes in this manner.

Big Peruvian Corn.—"C. O.," Iowa. This corn is by no means new to this country; we figured some of the enormous kernels in June, 1866, and it was tried by several of our friends at that time. We observe that it is again introduced, and farmers are again asked to try it. There is no doubt but what it will grow—indeed, that is the trouble with it, it doesn't stop growing. Frost will come and find it still growing without even stopping to make a tassel. The variety is entirely unsuited to our climate. It would perhaps come to perfection in the southernmost States, and if it were worth while, one might by selection in a few years establish a variety that would be earlier in its ripening. We have not seen the ear, but are told that it is not only not large in proportion to the kernel, but is really quite small. Supposing it to be a different species from the common corn *Zea Mays*, some European botanist has called it *Zea Macrosperma*; big-seeded Zea. It is often called "Cuzco corn."

Granular Butter.—To those who have inquired in reference to the production of butter in the granular form, described in an article in April last, we would say that the peculiar condition is not due to the kind of churn that may be used. Just as good granular butter may be produced in the "Blanchard," or any other churn with a revolving dasher, as in any form of oscillating churn, it all depends upon stopping at just the right time, and that is, when the granules have formed, and before they have been compacted into a uniform mass, as they will be, if the motion of the churn be continued.

Fighting the White-Grub.—No pest of our farms and gardens is more destructive than the White-Grub. It is especially mischievous for the reason that we know nothing of its presence until it has done its work. Operating underground, and out of sight, but little can be done to destroy it. We have several times suggested that the only effective method of attack is when it is in the perfect or beetle state. Many are not aware that the parent of the White-Grub is the so-called "May-Bug," "June-Bug," or "Dor-Bug," as it is variously called, and which often makes its way into the house in the evening, attracted by the light, where it makes its presence known by a great deal of bustle and noise as it bounces about in a headlong manner. The few insects that come into the house give but little idea of the great numbers that are doing mischief elsewhere. In each locality the beetles are especially abundant once in three years, and were the cultivators of a neighborhood to unite, in the destruction of the beetles, the White-Grub would do comparatively little damage. Some beetles appear every year, but the great crop is once in three years. As every female lays about 200 eggs, the importance of killing her before she has a chance to provide for that number of grubs will be seen. W. C. Stiles, Jr., Wood Co., West Va., has been acting upon our suggestion, and sends an account of his success. Mr. S. uses a "Tubular Lantern" set in a discarded milk pan, an inch or two of water is placed in the pan, and a layer of coal oil (kerosene) is put upon the water. The first night he tried two traps like this, he caught 189 beetles, the second night he caught over 500, and proposes to continue their use so long as any are taken. Of course any good lantern will answer as well as the one he used. Unlike many others, this is destructive in its beetle state, feeding usually on the leaves of trees, especially the cherry-tree. In the years of their abundance, the trees in which they take refuge should be found, and in the morning, while they are torpid, the insects should be shaken off, caught upon sheets, scalded, and fed to pigs. Several pailfuls have been taken in this manner in a single morning. The much abused crow does good work in destroying the grubs. We know of a case in which they caught the grubs that were at work upon the grass of a lawn. We have no doubt that when the crow is accused of destroying the young corn, it is merely after the grubs that attack the plant. The skunk is known to destroy great numbers of the beetles.

Beautiful Pansies.—No doubt that many who have seen the colored plate illustrating Pansies, and published by Messrs. B. K. Bliss & Sons with their Catalogue, have supposed that the artist had exercised his imagination, both as to size, and the strange combinations of colors. So far from this being the case, the flowers are, if anything, rather below the real size, and as to colors, it would be impossible to conceive of any artificial colors more brilliant, or more strangely contrasted, than they are in the flowers produced by the remarkable strain of seeds secured by Messrs. Bliss & Sons. Some of the blooms are as near black as it is possible for a flower to be, and of a velvety texture of great richness.

Potatoes to Bermuda.—In conversation with a friend who was familiar with the Bermuda trade, we asked him what the steamers principally took on their return trip. The reply was—"Everything eatable, including potatoes."—As "Bermuda Potatoes" are one of the principal exports from the Island, we supposed that the potatoes sent there were to be used for seed, but were informed that they were to be eaten—the planters finding it more profitable to sell their potatoes, than to eat them, as the price of a barrel of Bermudas, will buy several barrels of those from the States, and pay freight besides.

Bitter Milk.—"Mrs. A. N.," Jefferson, Tex., finds that her cows eat "Dog-fennel," and that the milk is on that account disagreeably bitter. We do not know of any help after the plant has been eaten. If any reader does, we hope it will be made known.

Millet Seed for Chickens.—"J. T.," Baltimore, Md., writes, that "those who know nothing of feeding Millet seed to young chickens, have something to learn. It does away with the customary slop attending the mixing of meal, and the seed may be swallowed by the smallest fowl. I use it altogether." There are now several things called "Millet," in cultivation; we suppose that our correspondent has reference to one of the *Setarias*, known as "Golden," "Mammoth," "Bengal," and "Hungarian Millet," and closely related to Hungarian Grass.

Pond Lily Culture.—"C. W." and others. We have not published any directions. A tub of some kind, some garden soil and water, are all the requirements. A tub may be made from a portion of a cask, and if desired it may be sunk in the ground. Place in the tub good soil enough for the roots, perhaps a quarter full will be sufficient; put in the plant; it is not necessary to plant it, merely pressing the stem into the soil will answer. The big affair which passes for the root is really the stem, which lays along the bottom of the pond. One side of this produces roots which take a strong hold of the soil, as every one who has tried to get up one knows, while buds producing the leaves and flowers are on the upper side. When the tub is filled with water, no further care is required during summer, except to supply water as it may be needed, as it is not likely that the rains will make up the loss by evaporation. Unless the tub can be so protected that it will not freeze solid, it should be removed to the cellar at the approach of cold water. Only enough water need be left in the tub when it is moved, than will be needed to keep the soil moist.

Mowing Machines.—It is estimated that 150,000 of these labor-saving machines are annually manufactured. There are 35,000,000 acres of meadow land in the United States, and the thought of mowing all this by the old method of the scythe, is enough to make one's back ache. Thanks to the inventive genius of a few men, that there is an easy and inexpensive, as well as rapid way, by using the mowing machines, many kinds of which are models of neatness and simplicity.

Food for Cattle Good for Fowls.—A while ago we had something to say about Weston's Food for Cattle, stating it to be a mixture of well known condiments and tonics, prepared in a convenient form for use. We have since been assured of its utility as a food for fowls and young chicks. From our knowledge of its composition, and of its effects upon horses and cattle, we should expect good results from giving it to fowls.

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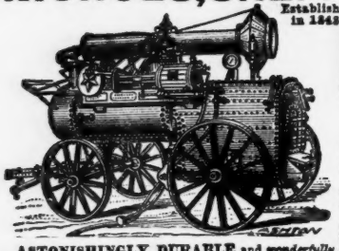

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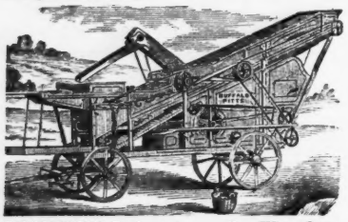

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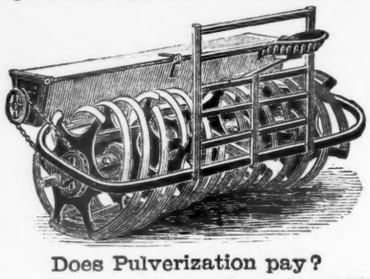

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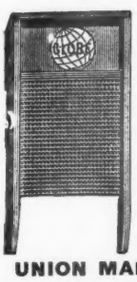

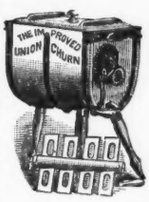

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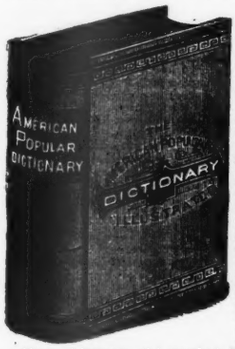

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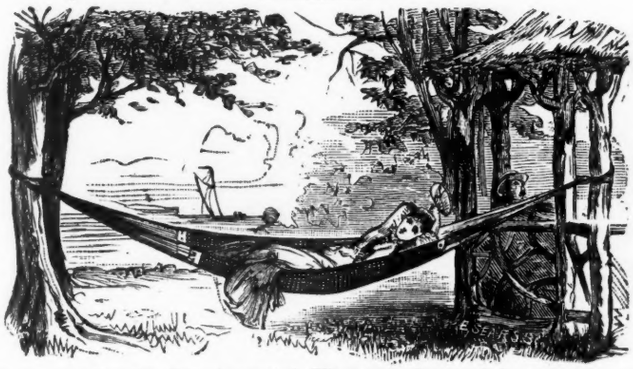

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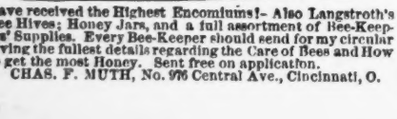

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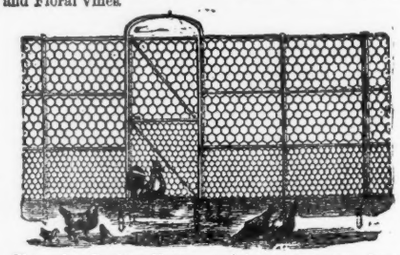

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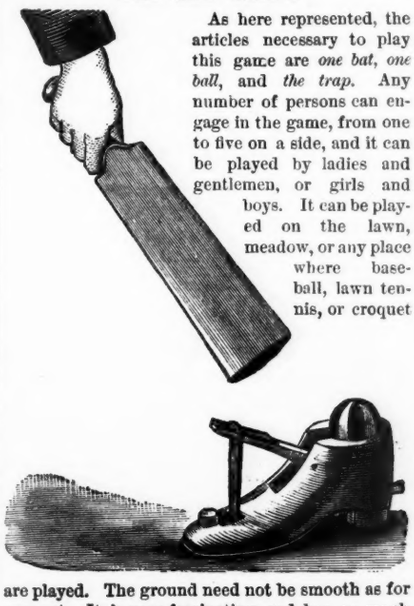

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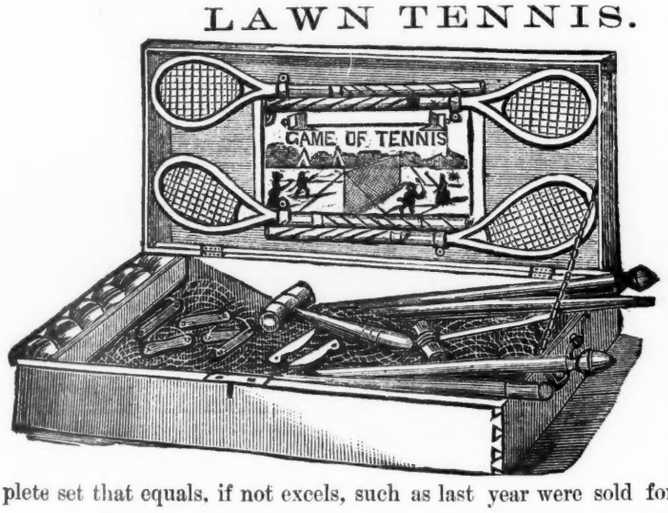

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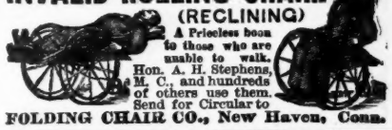

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